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# JOURNAL OF DAIRY SCIENCE

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## CONTENTS

Announcement ..... 375
Program—Twelfth Annual Conference American Dairy Science Association ..... 377
Legal Limits for Butter. B. D. WHITE ..... 378
Bacteriological Methods for Market Milk Analysis. R. S. BREED ..... 380
State and National Brands for Butter and Cheese. M. MORTENSEN ..... 393
Dairy Farm Score Card. ERNEST KELLY ..... 400
Statistics on Production and Marketing Dairy Products. R. C. POTTS ..... 409
Students' Dairy Cattle Judging Contest. HELMER RAHILD ..... 421
Students' Dairy Products Judging Contest. W. P. B. LOCKWOOD ..... 425
Address. B. H. RAWL ..... 428
Address. H. E. VAN NORMAN ..... 433
Resolutions. Officers and Standing Committees, A. D. S. A. ..... 437
Members in Attendance at Twelfth Annual Conference, A. D. S. A. ..... 440

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## ANNOUNCEMENT

This issue of the JOURNAL OF DAIRY SCIENCE is devoted to the Proceedings of the Twelfth Annual Conference of the American Dairy Science Association held at Columbus, Ohio, October 22, 1917.

In accordance with the expressed wishes of members present and a ruling by President W. A. Stocking, the discussions following each committee report, as well as the report itself, are published for the benefit of JOURNAL readers.

Many members of the Dairy Science Association are availing themselves of the opportunity to publish advance reports and progress made with various experimental projects now under way. This tendency is strictly in line with the desire of the United States Department of Agriculture and Food Administration who are putting forth every effort to make all scientific data immediately available to help out war emergencies. Since dairying represents one of the great fields of food production, every scientific fact that may advance dairy science should be given to co-workers at the earliest possible moment so that practical application may be made thereof as soon as possible. Too often important data has failed to reach those interested because of lack of funds for printing, or perhaps because the material was not adapted for bulletin form.

The JOURNAL OF DAIRY SCIENCE, it is hoped, will be considered the logical medium through which such scientific data can reach co-workers in the dairy world, and I wish to assure the readers that the editorial board will give careful consideration to all contributions sent it.

The editors consider that the Open Forum Department should be an important feature of the JOURNAL and inasmuch as this department offers opportunity for the wholesome discussion of new ideas and observations as well as practical application of new scientific work and the discussion of new methods for the presentation of these facts for instructional purposes, it is hoped

that readers of the JOURNAL of DAIRY SCIENCE will contribute freely to this Department.

The value of the JOURNAL will be in proportion to the contributions made to it, for only with an abundance of material from which to select can the editors maintain the high standard which I am sure is desired by every member of the Association.

J. H. FRANDSEN,
*Editor-in-chief.*

# TWELFTH ANNUAL CONFERENCE OF THE AMERICAN DAIRY SCIENCE ASSOCIATION

## COLUMBUS, OHIO, OCTOBER 22, 1917

The conference was called to order by the President, Prof. W. A. Stocking, at 2 p.m. in Memorial Hall and the following program was carried out:

Roll Call of Members
Minutes of Last Meeting
Reports of Committees

1. Legal Limits for Butter. B. D. White, *Chairman*, Winkjer, Benkendorf, Cunningham.
2. Course of Instruction for Dairy Inspectors. Oscar Erf, *Chairman;* Van Norman, Wing, Woodward, Harris, Buckley.
3. Bacteriological Methods for Market Milk Analysis. R. S. Breed, *Chairman*, Rogers, Hastings, Supplee, Hammer.
4. State and National Brands for Butter and Cheese. M. Mortensen, *Chairman;* Lee, C. Larsen, Hepburn, Fisk.
5. Dairy Farm Score Card. Ernest Kelly, *Chairman*, Lane, Stocking, Weld, Harding.
6. Statistics on Production and Marketing Dairy Products. R. C. Potts, *Chairman*, Hunziker, Thompson, Lee, Davis.

Address by H. E. Van Norman, President of the National Dairy Show.
Banquet. 6.30 p.m. October 22, 1917. The Busy Bee Restaurant, Columbus, Ohio.
Election of Officers.
Report of Students' Dairy Cattle Judging Contest. Helmer Rabild, U. S. Dairy Division.
Report of Dairy Products Judging Contest. W. P. B. Lockwood, Mass.
Address, by B. H. Rawl, Chief of U. S. Dairy Division.
Song—America—by Audience.
Adjournment.

# LEGAL LIMITS FOR BUTTER[1]

B. D. WHITE[2]

*Boston, Massachusetts*

Your Committee begs leave to report on the legal limits for butter as follows:

We recommend 80 per cent butter fat, 16 per cent moisture and 1.25 per cent casein. No tolerance should be allowed. This limit should be applicable to both salted and unsalted butter.

Since it is possible to test for moisture, allowing 1 per cent for casein, the ordinary buttermaker can with a reasonable degree of accuracy determine the per cent of fat in his butter without the necessity of analyzing the same for that purpose.

The question of allowing a higher percent of moisture for unsalted than for salted butter has been discussed, but since the butter fat is of intrinsic value, and unsalted butter commands a higher price than salted butter, it is not deemed wise by your Committee to have one standard for salted and another for unsalted butter.

Your Committee further begs leave to report that if there is to be a tolerance, the butter fat in the butter should be increased to the extent of the tolerance.

Your Committee is also inclined to believe that the casein is of minor importance and may be omitted entirely, if the Association deems it expedient to do so.

## DISCUSSION

In the discussion which followed the reading of this report Professor Hepburn raised the question as to whether or not it would be wise to make any specific recommendation regarding the amount of casein. Professor Mortensen thought that any action taken should be in harmony with the action taken by the National Buttermakers' Association at their meeting at Milwaukee.

[1] In the absence of Mr. B. D. White, Secretary M. Mortensen read this report.
[2] Chairman of committee.

Professor Frandsen suggested that since there are some differences regarding certain phases of the Standards, no definite recommendations be made by the association at this time.

Motion that the report be duly received and filed was made and carried, with the understanding that the Committee continue its work relative to the fixing of Standards.

# BACTERIOLOGICAL METHODS FOR MARKET MILK ANALYSIS

R. S. BREED[1]

*Geneva, New York*

During the past year this committee has continued to co-operate with the Committee on Standard Methods appointed by the American Public Health Association, whose final report has just been approved at the meeting held during the past week in Washington, D. C.

In the course of this coöperative work it has become increasingly evident that this latter report, drawn up as it is with the primary purpose of standardizing those methods of analysis which are useful in control and inspection work, would not meet the needs of the members of this Association. As a group the bacteriologists included in the American Dairy Science Association are primarily interested in research work, one of their functions being that of providing the dairy interests with analytical methods suitable for commercial purposes.

At the present time, all of the market milk sold in New York State and much of that sold in other states, is graded according to certain established standards of quality. A greater uniformity in these systems of grading will be secured as soon as there is a general recognition of the desirability of such grading accompanied by an elimination of those systems of grading which are founded upon false ideas of economic conditions. We hope that the report of your Committee on Milk Quality which is to be presented at this meeting will do something toward hastening the establishment of a better and more uniform system of grading milk.

Underlying any system of grading there must be suitable analytical methods for determining variations from the standard quality. Such methods as are needed for commercial use in

[1] Chairman of Committee.

grading the food value of milk are already well known and the work done by our committee on the Babcock Method has been of great value in securing greater uniformity and standardization of the most useful of these methods. With the approval of this Association your committee on Bacterial Methods proposes to undertake a similar work for these analytical methods which are suited for determining the variable qualities of market milk which are related to the presence or absence of bacteria.

Such a work will require time and additional research as our present available methods fail in many places to meet the needs of commercial interests. The final report ought not to duplicate the Report of Committee on Standard Methods of the American Public Health Association and ought at the same time to be of help to the dairy industry in meeting fair and just standards of quality.

## DISCUSSION

Professor Breed, supplementing his report said: "It seemed to some of us that there was a need for methods which were of particular use to the commercial man rather than of special value for inspection work. The American Public Health Association is interested primarily in judging the quality of milk that is supplied to consumers. The commercial interests are primarily interested in controlling the market—controlling the milk before it is supplied to consumers, and they must have special methods of doing it, or else they work blindly; but in some localities the methods would be a somewhat high test, and it is best that we work out a report that will be helpful and of benefit to the commercial interests."

In discussing the report Professor Harding said: "It seems to me this should be decided or could be decided by some committee on methods. As has been noted there has been reported the activity of the committee on methods of the various associations, and it seems that they could deal with this larger method for determining the element relating to bacteriology. I am perfectly willing that the policemen shall have methods of doing their work which shall be exhaustively correct. I don't object

to their having methods of that sort, but the thing I do object to strenuously is to having that policeman, or those police methods taken as official methods. The men may go into the bacteriological question and know what the methods are; but lots of them get the police methods and get the idea that is the way, and it is a serious question to find that a number of them are misled by application of this so-called police method. I think that in order to save the situation we should take up these methods for investigation. I am frank to say that in order to get that investigation you have to adopt methods—there are unfundamental methods which perhaps are not as good as police methods, but something ought to be done to recognize the official methods, and I think this matter should be taken up."

President Stocking said: "It seems to me that the Association is especially fortunate in having as Chairman of the Committee on Bacteriological Methods a man who is also a member of the American Public Health Association so that we will be practically beyond running contrary to methods which they may consider and our committee will have the benefit of the discussion which takes place and the action which may be had by the Public Health Association; but I have felt for a long time as Dr. Harding has expressed himself, that there is a vast difference between the real work the Public Health Association is attempting to do, and the work that this Association is trying to do, and it is not very advisable, if at all advisable, to make methods which are applicable identical for the two problems. I think there is a big value in the work of this committee, and I think that we were extremely fortunate in having the work in such good hands as it is in now."

Professor Breed explained that there are two members of this association who are members of this committee on standardization methods, Professor Harper being the other member appointed on this committee.

Motion that the report be adopted was carried.

# STATE AND NATIONAL BRANDS FOR BUTTER AND CHEESE

M. MORTENSEN[1]

*Ames, Iowa*

The following is a continuation of the report presented by your committee a year ago. During the past year the work of promoting the state trademarks for butter in three states, Minnesota, Michigan, and Iowa has continued with as much success as could be expected.

## MINNESOTA TRADE MARK

In reference to the work in Minnesota Hon. Jas. Sorenson, State Dairy and Food Commissioner, in a letter dated October 3, 1917, writes as follows:

We now have fourteen creameries scored for and twelve that are operating under our state brand law. We are all talking better quality of dairy products, and I consider our state brand law the best thing we have on our statute books for accomplishing this result.

In order that a creamery may comply with the requirements and use this brand, all dairies supplying milk must be inspected and receive an average score of at least 50 out of a possible 100 for the B brand and 60 points for the A brand. This puts the dairy inspectors in personal contact with the dairy farmer, which I consider the great factor in making a success of the brand law, because it has resulted in improvement of the raw material delivered to these creameries. Starting improvements first on the farm is the only way to accomplish true dairy reform. It takes good men and money to carry on this work of scoring for the state brand. On account of lack of funds, this work has not been pushed as much as it should be by this department the last few months, but we hope for more effective work the coming year. We have a number of applications on file for state brand scorings which we have so far not been able to comply with. In order to keep up the effectiveness of this work, the dairies should be rescored at least once each year.

[1] Chairman of committee.

Next in importance to the state brand law, I would consider the standardization of quality of the finished product from the factories. This, I think, could best be accomplished in smaller units, say, for instance, in county organizations. This has been attempted by the buttermakers of Meeker County, this state, during the past few months. Mr. Alfred Anderson, of Champion Butter Culture fame, has devoted most of his time this summer to helping the boys make a uniform quality of butter.

They have also tried to some extent to sell their butter to the same concern. I am not definitely informed as to results.

### MICHIGAN TRADE MARK

In reference to the work carried on in Michigan, Mr. H. D. Wendt, in Charge Dairy Division of the Michigan Dairy and Food Department, in a letter dated October 1, 1917, writes as follows:

The Michigan Dairy and Food Department has prosecuted this brand proposition vigorously ever since the enactment of our Trade Mark law in the 1915 session of the Michigan Legislature, and as a whole, progress is satisfactory. We have found, however, that progress is considerably interfered with from within the industry itself, and under conditions prevailing since our entry in the war, it is doubtful if much progress can be made.

I have been most bitterly disappointed in several phases of the work. One is the apparent lack of coöperation on the part of the distributors which simply indicates that in order to make the brand of any value to either the creameries or the consumers, new marking machinery must be set up. On the other hand, with conditions as they existed during the storage season just closed, with receivers and storers of butter paying a premium over the quotation of Extras for ninety point butter, confident in their ability to market this grade of butter at top prices, and in which they are apparently successful, the problem of the small creamery looks difficult indeed.

We have granted a license to twenty-one plants thus far. Quite a number of them are still working on navy contracts so it is difficult to measure the value of the brand to these particular creameries because their butter has not been on the open market. No changes have been made in our rules and none are immediately contemplated.

### IOWA TRADE MARK

In Iowa only four creameries have qualified for permission to use the Iowa state trade mark. Others are trying for the brand at present and it is reasonably certain that two more will qualify before long. It has been the policy in Iowa to score the butter from each churning for several weeks before permission to the

TRADE MARK ADOPTED FOR FIRST QUALITY IOWA BUTTER

use of the trade mark is granted. One creamery which recently qualified was sending trial samples for several months and it was evidently due to this training that the same creamery won the highest score at the National Convention held at Milwaukee this year.

### STATE AND NATIONAL TRADE MARK

Only the three states mentioned have up to this time employed the use of a state trade mark for butter. Report in reference to cheese was given a year ago by Prof. W. W. Fisk, Cornell University.

Your committee is of the opinion that a state trade mark should be of much value to be used for butter and cheese and the use thereof should be encouraged in other states where this system of recognizing quality has not yet been introduced. The question, however, in reference to a national standard will require a great deal more consideration before your committee will be ready to make definite recommendations. It is recognized that the American butter must be standardized, and in that work the state organizations will evidently be the leading factors. It will be quite possible and evidently most desirable that each state use its own trademark and when the creameries have qualified for the use of their state mark it will be comparatively easy to standardize such creameries of all states so that the butter made in those various creameries will be of uniform quality although it is differently branded.

The state trademark should always be held as the seal of high quality and as such it will be a prize which every creamery will be anxious to work for. If it is not kept up to that standard then it is not merely worthless but it is even a detriment to the state using it.

Considering that the trade marks for butter are kept up to a high standard it is evident that it will be a long time before all our creameries will qualify or even attempt to qualify. It is therefore realized that some other system for standardization should be adopted, not to take the place of the state trade marks, but a system which will be a stepping stone to the trade mark and which will furnish more immediate relief.

The butter from the smaller creameries is often sold for less than it should sell for due entirely to its lack in uniformity. The centralizing creameries are not on the average making a fancy butter as is made in most of the small local plants. Nevertheless the butter from the centralizing factories will often sell for more money than is realized on the superior butter from the smaller creameries for the reason that the products from the larger plants are of uniform quality. If we expect to uphold the local creamery it will be necessary that we help it to get into a position so it will be able to standardize its products for if not the larger plants will eventually become too strong as competitors.

The one who is not convinced of the lack of uniformity existing in the American butter should step into the butter exhibit hall at one of our national conventions. If the same person could then later step into a butter exhibit hall in Denmark or in Holland he would soon be convinced of the difference. In the European butter such points as body, color, salt and package are practically identical and the difference in flavor is discovered only by an expert. We need only to visit our Northern neighbors in Alberta and Saskatchewan in order to find what we would consider uniformity. The creameries in these provinces were confronted with the problem of marketing. They were manufacturing more than could be disposed of locally; the export market was the only one available to them but in order to establish a foreign market it was necessary to have the product standardized. America is about the only country which has been willing to accept our butter as it is but it will not be very long until we will find that even our own country will not continue to accept our products unless we are able to do the same as all other manufacturers do "Standardize our Products."

### BUTTER CONTROL IN ALBERTA AND SASKATCHEWAN

Improvements most often come as a result of necessity. It seems to be most natural for us to follow the road of least resistance. We are doing so today in reference to buttermaking and so they did in Canada until they were facing the problem of having an oversupply of dairy products. They realized that there was a good market for these in England if they could produce the goods which that market demanded but it was soon discovered that the Alberta and Saskatchewan butter did not come up to that high standard. Immediately the Dairy Commissioners of the two provinces started their work of improving and standardizing their products and through the effort of Commissioners C. Marker of Alberta and W. A. Wilson of Saskatchewan and Prof. K. G. McKay of the University of Saskatchewan the butter was not merely improved but it was also standardized to such an extent that today about per 50

cent or more of their butter is of uniform quality. Their butter has been exported to England with the satisfactory result that it was reported to be equal in quality to the Danish butter.

It is claimed by the dairy authorities in Alberta and Saskatchewan that the success obtained by the creameries of these provinces is largely a result of their system of grading the butter. Each of the two provinces are maintaining two butter grading stations. It is not compulsory for the creameries in either of the two provinces to send their butter to the grading station. Creameries in Alberta desiring to have their butter graded sign an agreement with the government whereby the creamery agrees to send a 14-pound box of butter from each churning to the grading station. These boxes are marked to correspond with markings on boxes from the same churning offered for sale. In addition to one or more letters indicating the creamery in which the butter is made the boxes also bear the serial number of churning and number indicating the date on which the butter was made. The dairy commissioner agrees to score the butter and to issue a government score card and to mail a copy of this to the buyer of the butter and a duplicate to the manufacturer, while a third copy is filed in the office of the dairy commissioner. As the buyers have become educated to the government score card most of them demand that the butter shall be bought on the government score card. For that reason about 90 per cent of the butter sold in Alberta is sold on the government score card, according to a statement made by Commissioner Marker. The price paid for butter varies in accordance with the score, about half a cent per pound being deducted for each point below "special." No government certificate or score card is issued for butter made from raw cream. The government buys the butter samples at a nominal price. These are held in cold storage for not less than one month as the samples may be needed in settling disputes between the buyer and the seller. If the manufacturer, after a month's time, desires to have his samples returned then he has the privilege of buying same for one cent more than he received from the government. This extra cent is supposed to pay for some of the expenses incurred in handling the butter at the station.

The system of grading in the Province of Saskatchewan differs from the system adopted in Alberta inasmuch as the former province has the entire shipment sent to the grading station where it is graded, and from there it is usually sent in car load lots to the market. In accordance with the Saskatchewan system the creamery will not necessarily have all of the output graded, but only that part which is shipped. What is sold locally will not be graded. The system in Saskatchewan is in a way cheaper so far as the grading is concerned as it will take fewer judges. This system is something similar to the system adopted in New Zealand where only butter that is to be exported is graded.

The chairman of your committee inquired from Mr. Marker of Alberta in reference to the success which they had obtained from their system of grading. He informs me that it is due to this system that their butter has reached its present high standard. I looked over some of his office records from which I found that for the week ending August 11, 1917, thirty of the Alberta creameries sold their entire output on the government score card as against twenty-seven creameries for the corresponding week in 1916. It is quite remarkable to know that all of the larger plants have taken advantage of the government grading station for although only about 50 per cent of the creameries have their butter sold on grade, these manufacture about 90 per cent of the total amount of butter manufactured in the province. I found that the butter for the week of August 11, 1917 graded as follows:

69.2 per cent graded specials
24.6 per cent graded first
5.0 per cent graded second
1.2 per cent off grade

This represents 461 lots or 301,505 pounds.

During the corresponding week of 1916, 410 lots were graded representing 248,535 pounds of which,

48 per cent graded specials
38 per cent graded first
12 per cent graded second
2 per cent off grade

The above seems to indicate that the quality is improved by their system of grading and likely as a result thereof greater interest is manifested by creamery operators as they find it difficult to sell the butter except on grade certificates.

The Alberta butter is classified under the following grades.

"Special" grade, scoring 94 to 100 points, minimum for flavor 41 points.

"First" grade, scoring 92 and under 94 points, minimum for flavor 39 points.

"Second" grade, scoring 87 and under 92 points, minimum for flavor 37 points.

"Off" grade, scoring under 87 points.

In order that creamery butter may qualify for "Special" grade certificate it must have been made from pasteurized cream and otherwise closely conform to the following description, which represents in a general way the requirements of the markets in which the great bulk of the Alberta product is consumed:

Flavor: Fine, sweet, mild and clean.

Texture: Firm and fine; clear, but not excessive, free moisture.

Color: Uniform and of a pale straw shade.

Salting: About 2 per cent, thoroughly dissolved and incorporated.

Package: Well-made box of export type, clean and evenly coated with paraffin wax on the inside surface and properly branded. Good quality of parchment paper linings, neatly arranged. The butter is to be solidly packed, full weight and with a smoothly finished surface.

The cream purchased is graded to correspond with the butter standard. Cream grading as "Special" is cream of such quality as will produce butter of special grade. First grade cream will produce first grade butter, etc.

### BUTTER CONTROL IN NEW ZEALAND

New Zealand demands that all butter exported is inspected by a government inspector. There are nine such inspectors employed in New Zealand or one inspector for each shipping

point. This inspector scores one package of butter from each churning. A certificate is issued for each shipment. A copy of this certificate is sent to the manufacturer of the butter, a second copy is sent to the purchaser of the butter and a third copy is mailed to the government inspector in London. The grade of the butter is also stenciled on the package and the merchant buys the butter on the basis of such markings.

In order that the government inspector may obtain a package from each churning it is ordered by law that all packages must be marked at the factory with the date when the butter was made and the number of the churning; each factory is furthermore required to keep a permanent record of such marks. If the package is marked "No. 5, June 2," that means that it is from the fifth churning made on June 2d.

In addition to such marks each package is also marked with the registered number of the creamery and each creamery exporting must be registered.

After the butter has been scored by the inspector in New Zealand it is required that it be placed in cold storage for not less than four days before it is loaded into the boats for shipment. A special inspector is located in London, England. This man has for several years been inspector in New Zealand and it is his duty to examine the butter when it arrives in England and if the butter has deteriorated while in transit or is of a different grade than that marked on the package he notifies the government immediately. In urgent cases he is allowed to cable. In order that the inspectors of New Zealand may be in a position to do uniform work all the inspectors come together about three or four times annually and at such annual conferences they do considerable scoring so they may all have the same standard.

The New Zealand inspectors will also take samples for moisture tests. All butter sold must contain less than 16 per cent moisture. The inspectors will furthermore weigh 5 per cent of the butter exported. If the butter is weighed with the parchment paper liner then they are supposed to allow 8 ounces on a 56-pound package, figuring 4 ounces for shrinkage and 4 ounces for the parchment paper liners.

## BUTTER CONTROL IN HOLLAND

The Holland system of butter control is based entirely on the chemical analysis of the butter. The purpose is that of preventing the creameries from adulterating the butter either with moisture or foreign fats. It is claimed that some years ago such adulterations were quite frequent in that country.

The inspectors take at the creameries, samples of butter wholly made under their supervision. Such samples are taken at irregular intervals. All samples are analyzed at the laboratory. All butter, when shipped must bear the government mark upon which by means of numbers and letters the maker as well as the date of making are indicated.

Notwithstanding the varying chemical composition of genuine Netherland butter, the butter control station concerned, can from the available data, give the chemical composition of control butter wherever and whenever such butter is found at home or abroad, provided only that the number and letters of the government label found on the butter be mentioned. It is evident that the genuineness of the butter can be established from a reasonable agreement of the analytical figures given by the control station with those found for the analyzed butter.

Since 1904 the Netherland government has authorized the butter control stations to use the above mentioned government butter mark. The government has prescribed certain well defined rules and conditions for the butter control stations and their members and government officials watch that these conditions are strictly followed up; in this way the butter control stations are under government supervision and enjoy the support of the government.

There are eight control stations in Holland. These stations employ a director who is the chief chemist and he usually has two helpers and a couple of men travelling through the country collecting samples. The chief station in Holland is at Leiden. At that place marks used for the butter are manufactured. A record is kept of all of the marks sent out to the various stations. The sub-stations in return send information back to the Leiden

Station in reference to the disposition of the stamps giving the number of stamps sent to the various creameries.

The Holland control stations are private, but work under the supervision of the government. The creameries bear the cost themselves pro rata to the amount of butter produced.

The paper marks used as identifying marks are made from casein and they are so perforated that when pressed into the butter they are not able to be removed and can therefore be used for only one package. The trade mark bears the Netherland coat of arms and has the writing "Nederlandsche Botercontrole" and each mark is numbered.

The society can refuse the admission of anyone who makes application for becoming a member without giving any reason for such a refusal. Manufacturers who become members must be persons of good reputation and such as are not identified with the manufacture or handling of oleomargarine or foreign oils.

Although this mark does not in a way indicate the quality as we usually understand the term, at the same time the English people will not accept butter from Holland unless it bears the government mark.

### BUTTER CONTROL IN DENMARK

The Danes are using a special mark known as the "lure mark." Each firkin which is used for the Danish butter contains two staves with the Danish lure mark. Staves bearing this mark are furnished by the main office of the Association. In addition to these special staves parchment paper bearing the lure mark and special numbers are furnished by the Association. One of these slips is placed inside in the bottom of the container and another one on top of the butter. A complete record is kept at the main office of the Association of the quantity of slips and staves sent to each creamery and the numbers with which such slips are marked. It is furthermore required that the creameries keep a complete record of the use of such labels and show where butter marked with the labels has been marketed.

In accordance with the Danish law no butter may be exported which has not been pasteurized to a temperature of not less than 176°F. and furthermore it must be properly marked with the Danish lure mark. It is possible, however, to ship print butter packed in hermetically sealed cans without such markings. All used firkins must be destroyed.

Anyone desiring to obtain the privilege of using the Danish lure mark must make request therefor in writing to the police station.

Any creamery that has the privilege of using the Danish lure mark is required to forward butter to the Danish Experiment Station whenever called for by that station. Calls are usually made by telegram or by special delivery letter and the butter must be sent immediately upon receipt of such notice. The package of butter to be sent must be from the churning made immediately before receipt of the notice. Such calls will be made from two to three times annually. The country is also divided into districts and each district has eight scorings annually. The buttermakers are required to exhibit butter for such scorings. If a low score is obtained by a creamery the experiment station in Copenhagen will be notified immediately and special calls for butter from such a creamery are made by the experiment station.

If the creamery scores five points below the average score when sending butter to the laboratory in Copenhagen, such a score is reported to the Secretary of Agriculture and special efforts will be made toward having the creamery improve the butter. A number of calls for butter from that creamery will be made and if they after a short time find no improvement the lure mark will be taken from the creamery and it will be impossible for such a creamery to export any butter and practically no sale exists for such butter in Denmark. In fact a creamery from which the lure mark privilege has been taken will practically have to go out of business.

The scoring at the dairy experiment station is done by three sets of judges. Each set of judges is composed of three men, one state inspector, one butter dealer and one buttermaker.

The butter when called for is left at the experiment station for two weeks at a temperature of 50°F. before it is scored. Their object is to score the butter at about the same time and in the same condition as it would reach the consumer.

## WORK TO BE RECOMMENDED FOR THE IMPROVEMENT OF BUTTER MANUFACTURED IN THE UNITED STATES

The chairman of your committee has for a long time considered the need for improvement of the Iowa butter and after studying conditions in Alberta and Saskatchewan I am fully convinced that we can accomplish the most work at the lowest cost by organizing butter grading stations. I have recommended that we in Iowa start two such stations, one to be located at Mason City and another at Des Moines. Each grading station should be started with one capable butter judge who could grade the butter and send out the necessary reports. One report should be sent to the butter buyer immediately, a copy should be mailed to the manufacturer, while a third should be placed on file. After the butter has been scored it should be stored for one month and then rescored for the purpose of determining the keeping qualities. A report of the rescoring should also be sent to the manufacturer and a copy thereof placed on file. If a sample is found to be of poor keeping qualities then a part of this sample, about 8 ounces should be sent to the experiment station for analysis so that we may be able to lend assistance to the manufacturer.

It has furthermore been recommended that we be ready to add to the force at the grading station whenever necessary and to establish grading stations in other parts of the state whenever the demand for such work has increased sufficiently.

In addition to this work we should encourage coöperation among the local creameries by encouraging them to join together for the purpose of employing an expert buttermaker who can assist the various creameries in standardizing the products of the creameries and gradually improving the quality. Such an expert should be employed for the annual output of 3,000,000 to

4,000,000 pounds of butter. He should stand in close touch with his experiment station and with his state dairy commissioner and should give immediate attention to defects in quality reported from the grading station. It is also possible that this expert eventually takes care of purchasing of supplies which can be done to best advantage if bought collectively.

The question has been asked, will such stations mean a profit to the American dairymen if established in the United States? We have no data from this country by which to prove that it will. We have, however, information from other countries. Alberta manufacturing about 7,000,000 pounds of butter annually can support two grading stations with two graders and one assistant for each station. New Zealand manufacturing less creamery butter than the State of Iowa is supporting nine grading stations and a special inspector located in London, England. Mr. S. Lowe, the senior member of the produce firm, W. Weddell and Company, one of the biggest produce firms in England made the statement to the writer three years ago that it was due to the New Zealand system of grading that their butter had attained a high reputation on the English market. This statement was confirmed by Mr. Wright, the New Zealand Inspector in London. The butter manufactured in Alberta and Saskatchewan holds the record today for being superior to the butter made in any other province of Canada. Dairy Commissioner C. Marker of Alberta, Dairy Commissioner W. A. Wilson of Saskatchewan, and Prof. K. G. McKay of the Dairy Department, University of Saskatchewan all inform me that their success has been obtained through the grading stations. Similar results have been obtained in Denmark and Holland. If the grading station has thus been a success every place where it has been introduced up to this time it would seem reasonable for us to expect equally satisfactory results if it is introduced in the United States. Your committee therefore recommends:

1. That the committee on state and national trade marks be discharged and that a new committee on standardization of American butter be appointed.

2. That this new committee shall encourage the establishment

of butter grading stations in the various states and encourage coöperation of creameries for the purpose of hiring an expert to supervise the output of a group of creameries.

3. This committee shall endeavor to secure the good will and coöperation of the butter dealers for the promotion of the proposed work.

4. The committee shall furthermore coöperate with other interested bodies such as the National Buttermakers Association, The Association of Dairy and Food Commissioners, the various state organizations, The Dairy Division and The Bureau of Markets, Washington, D. C. We should expect assistance from all these bodies if the matter is properly presented to them.

5. This committee should finally coöperate with butter boards and organizations above mentioned in establishing a commercial standard for American butter. In establishing such a standard it should be remembered that the commercial standard for creamery butter in Canada is 94 and about the same in the European countries. It would be an insult to the American creamery and the American buttermaker to propose a lower standard for American butter.

## DISCUSSION

In opening the discussion of this report Professor Mortensen said: "You may object to having a comparison made between the conditions in this country and those of Saskatchewan and Alberta as Edmonton, Alberta is about 1000 miles north of Ames, Iowa. It is well known, however, that the summers there are fully as warm as are our winters and it has been my experience that the quality of our butter is not improved very much during the winter months.

While at Calgary we were asked to judge butter purchased by a buyer from this country. He was buying butter from creameries that were not grading. This butter averaged from 88 to 86 points which was quite a contrast from the butter that we had graded before from the creameries that are grading and are having their butter graded by the grading station.

The information presented in reference to the conditions in New Zealand were obtained from Mr. Wright, the New Zealand inspector in London, England. Mr. Wright was formerly butter inspector in New Zealand.

The greatest defect in the American butter is that it does not possess keeping qualities. I examined butter in Alberta that had been kept in cold storage for eighteen months and it still appeared to be fresh. I hope to have a sample of this butter exhibited at Ames during the winter short course. I made an effort to have it here for this meeting, but I found it impossible to make the proper arrangements. It is my opinion that if they are able to produce butter possessing such keeping qualities in Alberta we can do the same here, but in order that it may be accomplished it will be necessary that we adopt definite rules and see to it that such rules are being enforced throughout our creameries.

I wish to state that at the National Buttermakers Convention a committee was appointed to take this matter in charge. This committee consists of three men, so if a similar committee is appointed by this Association there is an organized body of buttermakers with which it can coöperate."

Professor Potts said, "I consider the paper just read to be full of the best things that the Association has ever had presented to it. Having been in the Department of Agriculture for three years studying butter making, as well as some other branches, I want to say there is a lot of food for thought, for serious thought, in that article, and in the recommendations made by that committee. I am sure that it is a step in the right direction, and that the salvation of the dairy industry of this country today depends upon such action being taken as was recommended in that report. I want you when you go home to read that report through when it is published, and think seriously of carrying out some of the recommendations which they give, because I think they are right."

Professor Van Norman continuing the discussion said, "I want to emphasize the other end of the game. We are talking here now about the makers' standards and trade marks, and

their marketing their products. The thing that makes a trade mark valuable is that the consumer derives an understanding of that trade mark, and progress will come just in proportion to the number of creameries that can put it on, and the place we can make for them. This brings to my mind Mr. Powell who spoke this morning; as most of you know he is associated with Mr. Hoover, and he is a man who has appointed seven inspectors as well as two who put the trade mark on oranges, and I don't suppose there are any who have not heard of "Sunkist" oranges. When you have a high grade and have a trade mark, the consumer learns the grade, and wants that high grade, and you must uphold this high grade, and it is the dealers' ambition to make the—those who use the trade mark—goods reach the high standard."

Professor Mortensen said, "I think it is essential that there should be coöperation between the producer and the manufacturer and the consumer, and the merchant and the consumer. It is also important that we have this in mind, and I think that advertising eventually will be essential. We did not incorporate it here, owing to another tax which would be placed on the creameries in employing an expert. I feel certain that the other problem is coming and that such tax will be placed on these creameries for advertising."

Motion was carried to accept the report and adopt the committee's recommendations.

# DAIRY FARM SCORE CARD

ERNEST KELLY[1]

*Dairy Division, Washington, D. C.*

Mr. President and Gentlemen: I want to appear before you in a dual rôle this afternoon to say a few words for the committee and a few in my own behalf. As to the committee report we have none to make at the present time. I was notified within the last ten days that I have been appointed chairman of the committee, and there has not been time since that for us to get together and do any work. Three of the committee were on the train together last night, and in talking together it was decided that it might be well for the committee to outline the original purposes of the dairy score card so that we might not lose sight of just what we were working for.

The dairy score card was outlined originally and intended to be used as a guide in bettering general conditions on the dairy farm. It was not formulated, and has never been used by those who have known its true purpose, as an index to the bacteria count of milk produced on a farm, in individual cases, and it cannot be so used.

I would like to tell you in a few words what we have been doing in the Department along these lines within the past year. There seems to have been two important criticisms in the past of the dairy farm score card, both of them, I believe, founded on misapprehensions; but the two most important criticisms have been first, that the dairy farm score card does not indicate the bacteria count of the milk produced on that farm. That is one that is surely founded on a misapprehension, because the score card was never intended to do that. The other criticism has been that the dairy farm score card used in inspection work has worked an injustice in a great many cases. That is really a

[1] Chairman of committee.

repetition of the first objection. Where it has been used as a sole guide or index to the quality of the milk, it sometimes has worked an injustice because the farm may produce good milk, and still have a low score. Personally, I believe that the unjust talk about the dairy farm score card is considerably exaggerated. I have had experience in most of the states touching some thousands of farms, and while there have been quite a number of cases, where there has been gross injustice, these cases have been of very small proportion when you take into consideration the whole number of farms which have been subjected to inspection. And very largely these injustices have been the result of faults in the inspectors themselves, rather than of faulty methods.

In order to answer the objections that have been made to the score card, a number of us in the dairy division began about a year ago in a series of conferences to see what could be done to formulate a new card or change the score card in order that the objections might be overcome. Now, that card was formulated and has been on trial all this summer. We have scored several hundred dairies with this new form of card, and have taken bacteria counts in connection with them. I haven't said anything about this before because I want to be pretty sure of our card before we make any suggestions, but I am dealing with this card now as a serious suggestion, and to tell you that we have been using it; but we want to be sure of our data before we say anything, and so far we haven't had time to compare the results.

I have divided the score card into four sections. This may or may not be right, and we would be glad to have the help or assistance that any of the members of this Association can give us in making that right if it is not right. The first two sections are factors which affect the milk from a sanitary standpoint, and the last two sections are factors of more remote significance.

Now, personally, I do not feel, and I do not believe that any member of the score card committee feels that the bacteria count alone is the sole index of the desirability of market milk. There are a number of factors which are not in our present methods of laboratory control shown by the bacteria count, such

as the health of the cattle, the health of the employees, and a number of other things. We have separated these into one section and there we have health factors or specific disease factors such as health of employes, health of cattle, purity of water supply on the farm, and the disposal of excreta on the farm,—the main things which seem to have given the greatest trouble and have been the source of greatest danger.

Our second section is "major factors affecting bacteria count" and in this section we have selected those things which experiments up to the present time have indicated as most important as regards the bacteria count of the milk. We have selected these factors and weighed them according to the weights given them by the various experimenters, so that if that one section were used alone it should be an index of the bacteria count of the milk. Whether or not such a section to measure the bacteria count of the milk will be successful I cannot say.

The bacteria count must be made immediately after the time of production in order to have the score card workable. When the counts are made at the time of production there seem to be some very practical results; but I believe that will require considerable further work to show whether or not that section, or some other sort of score card can be gotten out that will prove a true index of the bacterial quality of the milk when produced because of certain results.

The other side of the card is divided into two sections which deal with economic aids to sanitation. For years we have been urging the dairy inspectors to work for more sanitary conditions on the farm, and to help also in the economic production of the milk. And this other side of the card is designed especially to help them along that line.

This side is divided into two sections, one general cleanliness and decency from equipment standpoint, and the other regarding methods, which, perhaps, may have only limited effect on the bacteria count of the milk.

The first section deals with the construction of the dairy so that it is easily cleaned; the location of the milk house so that it is convenient; the location of the water supply as to convenience;

and numerous other things which have to do with the convenience and economic conditions.

Now, as I have said, these are only tentative suggestions and we have offered them and want your criticisms. The committee has not gone over the data yet and was not ready to make any report at all, but I hope that this Committee will be able to work out something which will answer the criticisms which have been made, and take care of the score card needs of the future.

DISCUSSION

President Stocking said: "Might I suggest that you take the suggestions of this one now and be working on a score card from the different angles. It might be well to call on Dr. Harding to make his report, and we can discuss the two together.

(Dr. Harding then read his report which was printed in full in the Journal of Dairy Science, vol. i, no. 3.)

Discussion of both reports continued:

President Stocking said: "I intended to make a statement or explanation before Mr. Kelly addressed you. As members of the Association know, Mr. Lane who has come pretty close to being the father of sanitary milk grading of our Association, has been chairman of that committee since it has been on the list of committees of this Association; and it was my intention that he should continue as chairman of that committee; but, at his own urgent request that he be relieved of the chairmanship at this time, it was done, and Mr. Kelly was put on, and Mr. Kelly has not had time to make any report—I mean any other than a verbal report. Now, both of these reports are before you for discussion."

Professor Lane said: "In all fairness to Mr. Kelly, it should be stated that, while I was chairman of the two committees, our Department was making some investigation along the score card matter, and it was thought proper that a dairyman should be a member of that committee, but you see, Mr. Kelly was made commissioner before the investigation was over."

President Stocking said: "Some of you may have heard that Mr. Lane has recently received a higher position with the com-

pany with which he is connected, and as usual when a man is put in a new position, he wants to get out and work as hard as possible."

Prof. R. S. Breed made the following comments: "I would like to offer some comments on what Mr. Kelly has said. I do not think it can be too often repeated that the original purpose of the dairy score card was to measure the sanitary conditions, and as an index to the milk quality, and we in New York State have had it used in that way. I do not know under what classification our New York State milk is graded; but the rule in New York State generally covers quite a number of states, and we have issued through the state board of health a fixed state sanitary code. In that code the grade of milk is that which we get on the farm under a dairy score card—that is the sole index of the milk quality—that is the dairy score card, but that includes a very large bulk of the milk that is sold to the consuming communities of the state. The dairy score is used in that way.

"If I should offer any criticism at all in regard to the outlined score card which has been described it would be, perhaps, that in particular no part of it would seem to offer, or rather attempt to modify this score card—this dairy score card to be an index of the milk quality. Now, we have—we should have—a score card which does measure the dairy conditions on the farm; if it does not do that it would be of no use as an index of the quality of the milk. If you use it as an index of the conditions on the farm, it would be a pretty good index of the quality of the milk."

Prof. R. M. Washburn continued the discussion: "Since the old score card has been summed up so frequently, would it not be wise to go over the earlier situation, if possible, and get on a newer basis in which the score card shall indicate more closely the quality of the milk produced? Furthermore, in using the score card, it is only an indication of the quality produced, whether used for table, cooking or what purpose. When it is analyzed it does indicate that it is going along in the line indicated in the various milk ordinances, and that the quality is kept up all the time, it would seem that that would universally meet the situation."

Professor Kelly said: "I would like to call attention to one or two points before the discussion closes. Dr. Breed has pointed to a few of them. There is this consideration to be added, and I would like to have you think about it. There are throughout the country a great many small towns where the health officers receive an annual salary of from $40 to $200 a year for the control of all classes of sanitation that may arise in the town. They have no bacteriological laboratory and have no access to any. There is a question here—what can be done for milk control? In many of these towns they use some system of farm inspection and that is where the use of the score card comes in. In many of these little communities, the bacteria count is almost impossible under present conditions, and the score card has been used in a great many places for classifying the dairies because it was the only available means of inspection and classification.

"Dr. Harding had his report so full as to the amount and quality of the milk that it would not become us very well to go into that any further than to call attention to the fact that the quality of the milk, in my opinion, does not at all mean the bacteria count alone. We have special disease factors and other factors which must be considered in rating the quality of the milk."

Prof. J. H. Frandsen said: "I am very much interested in this report and realize that the committee have a tremendous task before them. I do not wish to appear to criticise their report. However, referring to the classification of milk as given by Dr. Harding,[2] this indicates but little difference between 'table' and 'special' milk.

"It seems to me that the term 'special milk' should indicate something much better than the other grades and I would suggest for your consideration, that, under the term healthfulness the clause be changed to read as follows: 'Medical supervision of health of men and animals whether milk is pastuerized or unpasteurized.'

"This would put 'special milk' distinctly in a class by itself."

[2] See classification of milk in "What is Meant by Quality of Milk." P. 212, vol. 1, no. 3. Journal of Dairy Science.

Dr. Harding said: "The statement regarding pasteurization is a question of diplomacy. There are several elements in the discussion which led to the outline taking this form. The difference between special and table milk seems simple but may offer some problems. 'Special' milk is so worded as to provide for certified milk when such exists. It also provides for any carefully inspected milk which is designed to be consumed unpasteurized.

"Differences are indicated in the table on page 13 between the special and table milk; also in the matter of keeping qualities. Other things being satisfactory, as they should be in both cases, you would find the long keeping quality of the milk in the special grade.

"As to the question of safety—they are supposed to be equally safe. The three grades should be the safe milk, and I personally feel that the pasteurized is safer than raw milk of the special grade. But in saying that, I am not speaking as a representative of the Committee, or any one in particular; I am speaking for myself individually. It is hard to get a committee to agree in all particulars, to see the same things alike; but I think that in all these three classes of milk you have a fairly safe milk as the word safe is ordinarily used. I do not think that they vary much on that point. I do not know whether we have the same idea of safety. I use this illustration in expressing the opinion to my classes. I explain to them how many instances there are on record of diseases being transmitted through milk, and the factors and characteristics of the various epidemics, and then I explain to them the probability of their contracting one of those diseases when they drink a glass of milk purchased in the open market; the mathematical probability of their contracting disease from the next glass of milk is about equal to the probability of their being killed on their next railroad journey; and still with that small probability of disease in the ordinary milk supply, I still think it is incumbent upon us to pasteurize milk in order to still further reduce danger from that source."

Professor Rasmussen said: "As has been said in this discussion it is very likely that just as much milk that is labelled cooking milk may be used on the table. In other words, if the

milk is only labelled as cooking milk, any one can buy the milk and use it on the table. Is that correct?"

Dr. Harding: "I think it is the American privilege to buy in the market and use where one chooses to use it."

Professor Rasmussen: "Yes, take the table milk and use the table milk for table purposes, and avoid the other kind. Yet if we knew this cooking milk was not considered fit for table use—but that is not the understanding. I just wondered whether some other term would be better to express it as a grade below the milk to be used as a table milk—it doesn't make any difference, or so much difference to some what they buy if it should be safe to use."

Dr. Harding: "There is a distinct difference in the two grades of milk which I believe the public will recognize and use in connection with the products. Table milk will have many advantages particularly more keeping quality, and therefore, be accepted for table use. In many instances, cooking milk will be a milk which has more dirt in it and is not so desirable. I think that we must get away from the idea, gentlemen, that the one thing which makes milk undesirable is danger to health. The red flag has been floated before the public too long—the milk danger flag. As a matter of fact, milk is both the most economic and substantial food that we can take. I think all of this milk can be rendered safe from the standpoint of the consumer's health; but we cannot take dirty milk and render it clean. We have recognized the fact that we must provide for cleanliness, and we can not take milk which is very nearly sour and make it fresh and sweet again; nor can we take 3 per cent milk and make it 5 per cent milk."

Prof. Anderson: "Would you consider this plan of grading milk as satisfactory for embodying in milk ordinances?"

Dr. Harding: "I should say that it was not at present because ordinances would call for tests for keeping quality which is not yet provided in this outline. This is not a finished thing ready to be made into an ordinance. It is submitted in this unfinished condition so that it can be open to criticism before being finished."

The Member: "Do you think it is safe to sell in a state, or

have milk to sell of the third grade—third grade milk, not having been subjected to pasteurization?"

Dr. Harding: "Our contention is that cooking milk should be made safe in regard to public health by boiling."

The Member: "I mean is it a violation at the place of sale or not? I mean if is it 'boiled' at the place of sale or not?"

Dr. Harding: "It should be boiled before being offered for sale. I have been joked a great deal by that 'boiling'—and as I suggested it I should take the blame. There is this to be said in favor of this plan of grading the milk—requiring that milk to be boiled—it would prevent some misunderstanding as happens when oleomargarine is colored—it would be a distinctive mark on the grade, and that same public would recognize it as a third grade milk."

Prof. C. W. Larson: "In reading over the classes and grades of milk as outlined, I have been unable to see how real quality is defined. It appears to me that the grades are simply instructions of how to treat any milk, regardless of its quality, in order to sell it under a particular grade. If a distributor were to secure the most unclean milk from even diseased, emaciated cows, clarify it so as to remove all visible dirt, and pasteurize it, then when he got through with this treatment, he could label it two or three per cent fat according to its composition and sell it as 'table milk.' It is table milk that would be used generally for direct consumption by children as well as others. Am I not correct in this conclusion?"

A Member: "I would like to ask if there is at present any educational work, or paper, which has shown any extensive work in the third grade milk?"

Dr. Harding: "Any system of classification which does not provide a place for all the milk, is not a complete classification. What are you going to do with the milk that does not come into the 'table grade?' There must be some place to put this in your classification."

Motion was made to receive the two reports and place them on file which motion was carried.

# STATISTICS OF PRODUCTION AND MARKETING OF DAIRY PRODUCTS

ROY C. POTTS[1]

*Washington, D. C.*

Within the limited time which your committee has had in which to give consideration to the subject of statistics of production and marketing of dairy products it has been impossible for the committee to formulate and conduct a definite study of the subject. Its report, therefore, cannot represent all that might be said on the subject. It is the purpose of this report to present a review of rather meagre observations which have been made, and to bring to the attention of the Association the need of a more systematized method of obtaining, compiling, and using statistics relating to the production and marketing of dairy products as they may be used in the more intelligent study of dairy conditions as they apply both to the production and marketing of dairy products.

An effort was made by the committee to assemble such statistics as are now available from various sources including those of municipal, state, and federal departments of government. Several singular and important facts were noted in reviewing the replies received from the parties addressed, and also the statistics obtained from the available sources. (1) Very few authorities endeavored to obtain any statistics at all. (2) Those who made an effort to obtain statistics admitted that they were incomplete and possibly inaccurate. (3) Such statistics as were compiled were not comparable because they were not secured in the same way or for the same purpose. (4) Most of the authorities agreed to the importance of securing more complete and authoritative statistics and to the use of uniform statistical blanks in securing dairy statistics. (5) Some authorities stated

[1] Chairman of committee.

that they were entirely without authority to obtain statistics on dairy products, and legislative action would be necessary before they could undertake such work. These facts indicate in general the conditions which exist, and it is obvious that to secure the cöoperation and uniform action on the part of those who compile dairy statistics, in assembling all statistics in such a way that they would be comparable is a considerable task.

Before endeavoring to secure such action, it came to the attention of the committee that the Bureau of Markets, of the United States Department of Agriculture, in obtaining dairy products reports from the dairy manufacturing concerns of the country, might be able to compile the essential dairy statistics in regard to the production and marketing of dairy products were it given the coöperation and assistance of all other agencies engaged in compiling such statistics. The work undertaken by this Bureau with reference to the statistics on dairy products is considered by the committee to be of sufficient importance to warrant its consideration in the committee's report. A brief statement will indicate the method of procedure of the Bureau and its plan of obtaining, compiling, and issuing dairy statistics.

The committee is informed that the Bureau of Markets has secured from various sources the names and addresses of near twenty thousand dairy manufacturing and milk distributing concerns in the United States. A card index file list of these firms has been prepared in alphabetical order by states, cities and firms within each city. To these firms monthly statistical form blanks are sent as per the blank form on page 411.

It will be noted that the blank includes the major manufactured milk products, carrying the same under twenty-seven items, and in addition to this blank a separate blank is used to secure statistics of oleomargarine products, both colored and uncolored, making two other additional items. Comment upon this schedule seems unnecessary, other than to say that it appears to be very complete and should enable the Bureau when filled out regularly each month by each dairy manufacturing concern in the United States to compile and issue accurate and authentic dairy statistics.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF MARKETS
*Washington, D. C.*

## WAR EMERGENCY DAIRY PRODUCTS REPORT

This schedule must be returned to the Bureau of Markets, Washington, D. C., by October 3, 1917, and must be filled out in accordance with the instructions on the reverse side and in the accompanying letter.

| * | PRODUCTS | MONTH OF SEPTEMBER | | * |
|---|---|---|---|---|
| | | 1916 | 1917 | |
| 6001 | Creamery butter.....Lbs. | | | Ent'd |
| 6002 | Process (renovated) butter.....Lbs. | | | 1917 |
| | American cheese: | | | |
| 6003 | "Whole milk".....Lbs. | | | Check |
| 6004 | "Part skim".....Lbs. | | | 1917 |
| 6005 | "Full skim".....Lbs. | | | |
| 6006 | Swiss cheese.....Lbs. | | | Ent'd |
| 6007 | Brick and Munster cheese.....Lbs. | | | 1916 |
| 6008 | Limburger cheese.....Lbs. | | | |
| 6009 | Cottage, pot, bakers, cream, and Neufchatel cheese curd.....Lbs. | | | Check 1916 |
| 6010 | All other varieties of cheese.....Lbs. | | | Punch |
| 6011 | Casein (dried).....Lbs. | | | 1917 |
| | Condensed and evaporated milk: | | | |
| | Unskimmed (case goods)— | | | |
| 6012 | Sweetened.....Lbs. | | | Check |
| 6013 | Unsweetened.....Lbs. | | | 1917 |
| | Skimmed (case goods)— | | | |
| 6014 | Sweetened.....Lbs. | | | O. K. |
| 6015 | Unsweetened.....Lbs. | | | |
| | Unskimmed (bulk goods)— | | | Punch |
| 6016 | Sweetened.....Lbs. | | | 1916 |
| 6017 | Unsweetened.....Lbs. | | | Check |
| | Skimmed (bulk goods)— | | | 1916 |
| 6018 | Sweetened.....Lbs. | | | |
| 6019 | Unsweetened.....Lbs. | | | |
| 6020 | Sterilized milk.....Lbs. | | | O. K. |
| 6021 | Condensed buttermilk.....Lbs. | | | |
| 6022 | Powdered buttermilk.....Lbs. | | | |
| 6023 | Powdered whole milk.....Lbs. | | | |
| 6024 | Powdered skimmed milk.....Lbs. | | | |
| 6025 | Malted milk.....Lbs. | | | |
| 6026 | Milk sugar.....Lbs. | | | |
| 6027 | Ice cream of all kinds.....Gals. | | | |

* These columns are to be reserved for use by the Bureau of Markets.

I hereby certify that the information given in the foregoing schedule, and the accompanying papers, if any, is true and complete to the best of my knowledge and belief.

Date....., Name of concern.....

ADDRESS: Street....., City ....., State.....

Signature of authorized person.....

Position or title.....

The committee is advised that it is the intention of the Bureau to coöperate with the dairy departments of agricultural colleges, also the dairy and food departments of the various states, by furnishing the college and food department in each state with a card index file of the firms within the respective state, which list corresponds with the file kept by the Bureau. With the coöperation and assistance of the colleges and dairy and food departments, the mailing list of the Bureau, also of the college and food departments, can be kept complete and up to date. The committee heartily recommends to the members of the American Dairy Science Association, who are connected with the dairy departments of the agricultural colleges or the dairy and food departments of the various states, that they render every assistance to the Bureau of Markets in its work.

The committee has been further advised that the Bureau of Markets will compile and issue monthly for the whole United States and separately for each state separate reports for each of the items included on the foregoing schedule or dairy products report form. Such reports issued by the Bureau of Markets will, for all practical purposes in the various states and for the United States, be authentic and accurate as to the amount of the various dairy products manufactured.

As a separate and distinct undertaking apart from the production reports, the Bureau of Markets is, and has for some time, been compiling monthly reports of the amount of creamery butter, packing stock butter, and cheese in storage. These reports are compiled in a very similar way to the production reports which have been previously described. A copy of the form blank or schedule used by the Bureau in securing the reports from the various cold storage firms, also copies of the summarized reports of the holdings of creamery butter, packing stock butter, and cheese in storage, as issued by the Bureau for the month of September, 1917, are submitted herewith.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF MARKETS
*Washington, D. C.*

REPORT OF PRODUCTION OF.....FOR MONTH OF.....191
WITH COMPARISONS FOR CORRESPONDING MONTH THE PREVIOUS YEAR

| STATE | TOTAL NUMBER OF CONCERNS REPORTING | TOTAL QUANTITY MANUFACTURED | COMPARISON | | | |
|---|---|---|---|---|---|---|
| | | | Number of concerns reporting | September 1918 | September 1917 | Increase or decrease (per cent) |
| Alabama | | | | | | |
| Arizona | | | | | | |
| Arkansas | | | | | | |
| California | | | | | | |
| Colorado | | | | | | |
| Connecticut | | | | | | |
| Delaware | | | | | | |
| District of Columbia | | | | | | |
| Florida | | | | | | |
| Georgia | | | | | | |
| Idaho | | | | | | |
| Illinois | | | | | | |
| Indiana | | | | | | |
| Iowa | | | | | | |
| Kansas | | | | | | |
| Kentucky | | | | | | |
| Louisiana | | | | | | |
| Maine | | | | | | |
| Maryland | | | | | | |
| Massachusetts | | | | | | |
| Michigan | | | | | | |
| Minnesota | | | | | | |
| Mississippi | | | | | | |
| Missouri | | | | | | |
| Montana | | | | | | |
| Nebraska | | | | | | |
| Nevada | | | | | | |
| New Hampshire | | | | | | |
| New Jersey | | | | | | |
| New Mexico | | | | | | |
| New York | | | | | | |
| North Carolina | | | | | | |
| North Dakota | | | | | | |
| Ohio | | | | | | |
| Oklahoma | | | | | | |
| Oregon | | | | | | |
| Pennsylvania | | | | | | |
| Rhode Island | | | | | | |
| South Carolina | | | | | | |
| South Dakota | | | | | | |
| Tennessee | | | | | | |
| Texas | | | | | | |
| Utah | | | | | | |
| Vermont | | | | | | |
| Virginia | | | | | | |
| Washington | | | | | | |
| West Virginia | | | | | | |
| Wisconsin | | | | | | |
| Wyoming | | | | | | |
| Total | | | | | | |

THIS SCHEDULE RETURNABLE NOT LATER THAN OCTOBER 4, 1917

REPORT ONLY GOODS ON HAND IN YOUR OWN WAREHOUSE

| CODE* | COMMODITIES | | BASIS 1916 | OCTOBER 1, 1916 | OCTOBER 1, 1917 | * |
|---|---|---|---|---|---|---|
| 2001 | Butter (Creamery) | (Pounds) | | | | Entered |
| 2002 | Cheese (American | " | | | | 1917 |
| 2003 | Eggs | (Cases) | | | | Check |
| 2004 | Frozen Eggs | (Pounds) | | | | 1917 |
| 2005 | Packing Stock Butter | " | | | | Entered |
| 3001 | Frozen Beef | " | | | | 1916 |
| 3002 | Cured Beef | " | | | | Check |
| 3003 | Frozen Pork | " | | | | 1916 |
| 3004 | Dry Salt Pork | " | | | | Punch |
| 3005 | Sweet Pickled Pork | " | | | | 1917 |
| 3006 | Lard | " | | | | Check |
| 3007 | Lamb and Mutton Frozen. | " | | | | 1917 |
| 4001 | Broilers | " | | | | Punch |
| 4002 | Roasters | " | | | | 1916 |
| 4003 | Fowls | " | | | | Check |
| 4004 | Turkeys | " | | | | 1916 |
| 4005 | Miscellaneous Poultry | " | | | | O. K. |

* These columns for use in this Bureau only.

I hereby certify that the answers given on the foregoing schedule are true and complete to the best of my knowledge and belief.

.....
(Name of concern)

.....
(Signature of authorized person.)

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF MARKETS
*Washington, D. C.*

October 11, 1917

## REPORT OF COLD STORAGE HOLDINGS OF CREAMERY BUTTER, OCTOBER 1, 1917

Reports from 380 cold storages show that their rooms contain 104,293,375 pounds of CREAMERY BUTTER while on September 1, 354 storages reported 100,839,277 pounds. The 332 storages that reported holdings on October 1, of this year and last show a present stock of 97,456,876 pounds as compared with 100,521,573 pounds last year, a decrease of 3,064,697 pounds or 3.0 per cent. The

reports show that during September, the September 1 holdings increased 0.1 per cent, while our last report showed that during August, the August 1 holdings increased 14.4 per cent. Last year the decrease during September was 7.8 per cent and in August the increase was 3.3 per cent. A summary of this report was released by wire on October 11. As a number of firms have not responded to our inquiries, this report does not include all holdings. Upon request any or all of the information contained in the cold storage reports will be telegraphed immediately upon its release. These reports are free, except for the telegrams, which are sent charges collect.

| SECTION | TOTAL HOLDINGS OCTOBER 1, 1917 | | COMPARISON OF HOLDINGS | | | |
|---|---|---|---|---|---|---|
| | Number of storages reporting | Pounds | Number of storages reporting | October 1, 1916, pounds | October 1, 1917, pounds | Increase or decrease (per cent) |
| New England | 30 | 24,670,258 | 27 | 25,044,351 | 22,802,188 | − 9.0 |
| Middle Atlantic | 88 | 31,023,869 | 82 | 30,883,321 | 30,777,908 | − 0.3 |
| South Atlantic | 32 | 1,653,724 | 24 | 1,475,272 | 1,630,806 | +10.5 |
| N. Central (E) | 64 | 28,461,982 | 54 | 27,359,933 | 24,233,900 | −11.4 |
| N. Central (W) | 59 | 11,863,653 | 56 | 8,915,165 | 11,571,681 | +29.7 |
| South Central | 41 | 1,581,113 | 36 | 1,268,628 | 1,576,298 | +24.3 |
| Western (N) | 32 | 1,807,300 | 26 | 1,930,854 | 1,649,556 | −14.6 |
| Western (S) | 34 | 3,231,476 | 27 | 3,644,049 | 3,214,539 | −11.8 |
| Total | 380 | 104,293,375 | 332 | 100,521,573 | 97,456,876 | − 3.0 |

| | NUMBER OF STORAGES REPORTING | POUNDS | COMPARISON ON PERCENTAGE BASIS | INCREASE OR DECREASE (POUNDS) |
|---|---|---|---|---|
| Comparison of holdings: | | | | |
| on September 1, 1917 | 320 | 98,672,970 | 100.0 | |
| and October 1, 1917 | 320 | 98,749,922 | 100.1 | +76,952 |
| Comparison of holdings: | | | | |
| on September 1, 1916 | 251 | 105,285,506 | 100.0 | |
| and October 1, 1916 | 251 | 97,092,876 | 92.2 | −8,192,630 |
| Comparison of holdings: | | | | |
| on August 1, 1917 | 294 | 86,235,920 | 100.0 | |
| and September 1, 1917 | 294 | 98,683,757 | 114.4 | +12,447,837 |
| Comparison of holdings: | | | | |
| on August 1, 1916 | 233 | 101,606,527 | 100.0 | |
| and September 1, 1916 | 233 | 104,930,786 | 103.3 | +3,344,259 |

NEW ENGLAND: Me., N. H., Vt., Mass., R. I., Conn. MIDDLE ATLANTIC. N. Y., N. J., Pa. SOUTH ATLANTIC: Del., Md., D. C., Va., W. Va., N. C., S. C., Ga., Fla. NORTH CENTRAL (East of Miss. River) Ohio, Ind., Ill., Mich., Wis., (West of Miss. River) Minn., Iowa, Mo., N. D., S. D., Nebr., Kans. SOUTH CENTRAL: Ky., Tenn., Ala., Miss., La., Tex., Okla. Ark. WESTERN: (North) Mont., Wyo., Idaho, Wash., Ore. (South) Colo., N. Mex., Ariz., Utah, Nev. Calif.

CHARLES J. BRAND,
*Chief.*

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF MARKETS
*Washington, D. C.*

October 11, 1917

## REPORT OF COLD STORAGE HOLDINGS OF PACKING STOCK BUTTER, OCTOBER 1, 1917

Reports from 107 cold storages show that their rooms contain 2,493,174 pounds of PACKING STOCK BUTTER while on September 1, 83 storages reported 2,531,215 pounds. The 81 storages that reported holdings on October 1, of this year and last show a present stock of 1,901,354 pounds as compared with 3,332,810 pounds last year, a decrease of 1,431,456 pounds or 43.0 per cent. The reports show that during September, the September 1 holdings decreased 29.3 per cent. Last year the decrease during September was 6.3 per cent. A summary of this report was released by wire on October 11. As a number of firms have not responded to our inquiries, this report does not include all holdings. Upon request any or all of the information contained in the cold storage reports will be telegraphed immediately upon its release. These reports are free, except for the telegrams, which are sent charges collect.

| SECTION | TOTAL HOLDINGS OCTOBER, 1917 | | COMPARISON OF HOLDINGS | | | |
|---|---|---|---|---|---|---|
| | Number of storages reporting | Pounds | Number of storages reporting | October 1, 1916, pounds | October 1, 1917, pounds | Increase or decrease (per cent) |
| New England..... | 2 | 427 | 1 | 180 | 227 | + 26.1 |
| Middle Atlantic..... | 10 | 187,153 | 7 | 344,637 | 105,715 | − 69.3 |
| South Atlantic..... | 8 | 83,681 | 7 | 22,549 | 50,999 | +126.2 |
| N. Central (E)..... | 30 | 1,244,253 | 22 | 1,308,770 | 1,072,193 | − 18.1 |
| N. Central (W)..... | 38 | 720,499 | 31 | 1,491,393 | 441,874 | − 70.4 |
| South Central..... | 8 | 67,445 | 6 | 7,162 | 50,148 | +600.2 |
| Western (N)..... | 6 | 54,888 | 3 | 6,584 | 46,472 | +605.8 |
| Western (S)..... | 5 | 134,828 | 4 | 151,535 | 133,726 | − 11.8 |
| Total..... | 107 | 2,493,174 | 81 | 3,332,810 | 1,901,354 | − 43.0 |

| | NUMBER OF STORAGES REPORTING | POUNDS | COMPARISON ON PERCENTAGE BASIS | INCREASE OR DECREASE (POUNDS) |
|---|---|---|---|---|
| Comparison of holdings: | | | | |
| on September 1, 1917 | 72 | 2,295,808 | 100.0 | |
| and October 1, 1917 | 72 | 1,622,720 | 70.7 | −673,088 |
| Comparison of holdings: | | | | |
| on September 1, 1916 | 45 | 3,278,785 | 100.0 | |
| and October 1, 1916 | 45 | 3,070,881 | 93.7 | −207,904 |

NEW ENGLAND: Me., N. H., Vt., Mass., R. I., Conn. MIDDLE ATLANTIC: N. Y., N. J., Pa. SOUTH ATLANTIC: Del., Md., D. C., Va., W. Va., N. C., S. C., Ga., Fla. NORTH CENTRAL: (East of Miss. River) Ohio, Ind., Ill., Mich., Wis., (West of Miss. River) Minn., Iowa, Mo., N. D., S. D., Nebr., Kans. SOUTH CENTRAL: Ky., Tenn., Ala., Miss., La., Tex., Okla. Ark. WESTERN: (North) Mont., Wyo., Idaho, Wash., Ore. (South) Colo., N. Mex., Ariz., Utah, Nev., Calif.

CHARLES J. BRAND,
*Chief.*

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF MARKETS
*Washington, D. C.*

October 11, 1917

## REPORT OF COLD STORAGE HOLDINGS OF AMERICAN CHEESE, OCTOBER 1, 1917

Reports from 438 cold storages show that their rooms contain 84,328,964 pounds of AMERICAN CHEESE while on September 1, 393 storages reported 81,974,731 pounds. The 373 storages that reported holdings on October 1 of this year and last show a present stock of 76,498,937 pounds as compared with 49,579,142 pounds last year, an increase of 26,919,795 pounds or 54.3 per cent. The reports show that during September, the September 1 holdings increased 0.4 per cent, while our last report showed that during August, the August 1 holdings increased 27.6 per cent. Last year the decrease during September was 5.3 per cent and the increase during August was 14.6 per cent. A summary of this report was released by wire on October 11. As a few storages have not responded to our inquiries, this report does not include all holdings. Upon request, any or all of the information contained in the cold storage reports will be telegraphed immediately upon its release. These reports are free, except for the telegrams, which are sent charges collect.

| SECTION | TOTAL HOLDINGS OCTOBER 1, 1917 | | COMPARISON OF HOLDINGS | | | |
|---|---|---|---|---|---|---|
| | Number of storages reporting | Pounds | Number of storages reporting | October 1, 1916, pounds | October 1, 1917, pounds | Increase or decrease (per cent) |
| New England | 26 | 7,180,684 | 20 | 5,593,677 | 6,844,023 | + 22.4 |
| Middle Atlantic | 105 | 33,093,678 | 93 | 20,441,479 | 31,835,286 | + 55.7 |
| South Atlantic | 40 | 3,000,741 | 31 | 2,028,442 | 2,178,270 | + 7.4 |
| North Central (E) | 94 | 28,028,111 | 80 | 13,034,220 | 23,053,354 | + 76.9 |
| North Central (W) | 58 | 3,806,751 | 56 | 2,580,077 | 3,804,751 | + 47.5 |
| South Central | 50 | 1,855,216 | 39 | 718,126 | 1,663,750 | +131.7 |
| Western (N) | 29 | 1,165,397 | 24 | 845,245 | 1,066,521 | + 26.2 |
| Western (S) | 36 | 6,198,386 | 30 | 4,337,876 | 6,052,982 | + 39.5 |
| Total | 438 | 84,328,964 | 373 | 49,579,142 | 76,498,937 | + 54.3 |

| | NUMBER OF STORAGES REPORTING | POUNDS | COMPARISON ON PERCENTAGE BASIS | INCREASE OR DECREASE (POUNDS) |
|---|---|---|---|---|
| Comparison of holdings: | | | | |
| on September 1, 1917 | 360 | 81,280,743 | 100.0 | |
| and October 1, 1917 | 360 | 81,638,837 | 100.4 | +358,094 |
| Comparison of holdings: | | | | |
| on September 1, 1916 | 273 | 46,776,039 | 100.0 | |
| and October 1, 1916 | 273 | 44,308,627 | 94.7 | −2,467,412 |
| Comparison of holdings: | | | | |
| on August 1, 1917 | 323 | 58,218,536 | 100.0 | |
| and September 1, 1917 | 323 | 74,300,651 | 127.6 | +16,082,115 |
| Comparison of holdings: | | | | |
| on August 1, 1916 | 198 | 29,421,708 | 100.0 | |
| and September 1, 1916 | 198 | 33,545,179 | 114.0 | +4,123,471 |

NEW ENGLAND: Me., N. H., Vt., Mass., R. I., Conn. MIDDLE ATLANTIC: N. Y., N. J., Pa. SOUTH ATLANTIC: Del., Md., D. C., Va., W. Va., N. C., S. C., Ga., Fla. NORTH CENTRAL: (East of Miss. River) Ohio, Ind., Ill., Mich., Wis., (West of Miss. River): Minn., Iowa, Mo., N. D., S. D., Nebr., Kans. SOUTH CENTRAL: Ky., Tenn., Ala., Miss., La., Tex., Okla., Ark. WESTERN: (North) Mont., Wyo., Idaho, Wash., Ore. (South) Colo., N. Mex., Ariz., Utah, Nev., Calif.

CHARLES J. BRAND,
*Chief.*

It would seem unnecessary for the committee to comment to any considerable extent upon this phase of the Bureau's work in compiling storage statistics on dairy products. However, the committee is informed that, supplementary to the production reports and cold storage reports, the proposed activities of the Bureau in connection with the establishing of a market news service on dairy products will include the compiling and issuing of statistics in regard to the receipts of butter on the larger and more important wholesale butter markets, at which branch offices of the Bureau are to be established, also of the amount of butter carried from day to day in the coolers of the wholesale market receivers, the in-go and out-go of butter from storage, the transfer of ownership of butter in storage, and daily statistics in regard to exports and imports and shipments to out of town, nearby, and distant jobbing trade.

With the undertaking of such comprehensive and useful statistical work by the Bureau of Markets relating to the production and marketing of dairy products, the committee cannot help but feel that the members of the American Dairy Science Association should be most appreciative of the Bureau's work and endeavor to make every practical use that is possible of the statistical reports issued by the Bureau relating to the production and marketing of dairy products. The committee further feels that on account of the comprehensiveness of the Bureau's activities that there is comparatively little which remains for the committee to do in the matter of suggesting improvements in the compilation of dairy statistics. It does feel, however, if it is the desire of the Association, that it may be able to continue its work to the end that suggestions may be offered in a future report dealing with the interpretation, application, and practical use which may be made by the dairy industry of the statistics compiled and issued by the Bureau of Markets, of the United States Department of Agriculture.

It was moved and carried that the report be accepted and that the American Dairy Science Association approve the work of this committee.

## EVENING SESSION

Meeting called to order by President Stocking, who said:

Gentlemen, I think we should feel rejoiced tonight at the size of the gathering that we have here. I do not know that I have missed one of these annual banquets for the last seven or eight years at least, and this is by far the largest that I have seen. It is a splendid thing for us to get together each year, and throw off the restraint when we have a chance, and visit informally.

Tonight there is no program or rather we will vary the program for the time we will spend here, but there are a few men connected with other pursuits that we want to hear from, because we are interested in the work that they are doing, and for which they are responsible. I am sure that every member of the Association would like to hear from the man who has charge of the dairy judging contest and I will predicate by asking Mr. Rabild to give us his report on the contest.

# STUDENTS' NATIONAL CONTEST IN JUDGING DAIRY CATTLE. NATIONAL DAIRY SHOW, COLUMBUS, OHIO

HELMER RABILD[1]
*Dairy Division, Washington, D. C.*

We realize that they have this year had to meet some very unusual obstacles and that it has meant real hard and earnest effort to manage to get the teams ready for the contest and have them here in actual competition. We appreciate these efforts and I told Mr. Skinner this morning that I think it is that kind of spirit which is going to carry us "over the top." Now just for a brief report of the contest.

The Ninth Annual Students' National Contest in Judging Dairy Cattle was held at the National Dairy Show at Columbus, Ohio, October 19, 1917. Thirteen State agricultural colleges were represented by teams, from Massachusetts to Missouri and from Virginia to South Dakota. Each team consisted of three students accompanied by the professor in dairy or animal husbandry who had coached the team. The students were required to judge eight classes of cattle, consisting of four bulls and four cows of each of the following breeds: Ayrshire, Guernsey, Holstein and Jersey. The official placing of the animals in the contest was made by a committee composed of the coaches of the various teams; namely, Professors Frank A. Hays, Delaware: Robert Wylie, Iowa; J. B. Fitch, Kansas; J. J. Hooper, Kentucky; R. H. Ruffner, Maryland; J. C. McNutt, Massachusetts; W. W. Swett, Missouri; B. H. Thompson, Nebraska; W. M. Regan, New Jersey; S. M. Salisbury, Ohio; E. L. Anthony, Pennsylvania; C. Larsen, South Dakota; and R. E. Hunt, Virginia.

The students were divided into four groups in such a way that

[1] Superintendent of contest.

no two students from the same college were in the same group. The students were required to rank each class of cattle in the order of their merit in conformation, and were then required to withdraw from the ring and write why they placed the animals in each class of cattle as they did. The final awards were made not only on the students' ability to place the cattle correctly, but also on their ability to state the reasons for such placing.

The students were competing for three $400 scholarships and for numerous cups and trophies. The scholarships will be used for post-graduate work in dairy husbandry. One scholarship was offered by the Holstein-Friesian Association of America to the student who did the best work in judging Holsteins; another was given by the DeLaval Separator Company to the man who did the best work in judging all breeds; and a third was presented by the Associated Manufacturers' Company, manufacturers of the Iowa Dairy Separator, to the college whose team did the best work in judging all breeds.

### SWEEPSTAKES TEAMS

The three teams winning highest honors or sweepstakes in the contest were as follows: I. University of Missouri. II. Iowa State College. III. University of Nebraska.

In addition to winning the Iowa Dairy Separator scholarship of $400, the University of Missouri also won silver loving cups offered by the National Dairy Show and by the Hoard's Dairyman Publishing Company.

The Iowa State College won a silver loving cup offered by the J. B. Ford Company, manufacturers of the Wyandotte Dairyman's Cleaner and Cleanser, for having the second highest team in the contest.

### SWEEPSTAKES MEN

The five highest men in judging all breeds were as follows: (1) M. R. Dunn, Missouri; (2) C. A. March, Iowa; (3) Otto Schaefer, Missouri; (4) E. B. Nelson, Iowa; (5) S. V. Layson, South Dakota.

The highest or sweepstakes man, Mr. M. R. Dunn, from

Missouri, won the $400 DeLaval scholarship. Each of the above mentioned men was also awarded a gold medal by the National Dairy Show.

### THE HOLSTEIN SCHOLARSHIP

The three highest men in judging Holsteins were as follows: (1) J. R. Shepherd, Nebraska; (2) M. R. Dunn, Missouri; (3) A. E. Miller, South Dakota.

Mr. J. R. Shepherd of the University of Nebraska winning the $400 Holstein-Friesian scholarship.

### THREE HIGHEST TEAMS IN EACH BREED

*Ayrshire.* (1) University of Missouri, (2) Delaware College (3) Iowa State College.

The University of Missouri won the silver loving cup offered by the Ayrshire Breeder's Association.

*Guernsey.* (1) Pennsylvania State College, (2) Iowa State College, (3) South Dakota State College.

The Pennsylvania State College won the silver loving cup offered by the American Guernsey Cattle Club.

*Holstein.* (1) University of Nebraska, (2) University of Missouri, (3) Iowa State College.

The University of Nebraska won the silver loving cup offered by the Holstein-Friesian Association of America.

*Jersey.* (1) University of Missouri, (2) Kentucky State University, (3) Maryland Agricultural College.

The University of Missouri won the silver loving cup offered by the American Jersey Cattle Club.

### UNIVERSITIES AND COLLEGES PARTICIPATING

Delaware College,
Iowa State College,
Kansas State Agricultural College,
Kentucky State University,
Maryland Agricultural College,

Massachusetts Agricultural College,
University of Missouri,
University of Nebraska,
New Jersey College of Agriculture,
Ohio State University,
Pennsylvania State College,
South Dakota State College,
Virginia Agricultural and Mechanical College.

I presume, gentlemen, that you have had a good many reports this afternoon, and I shall not weary you with an extended report of the contest. I desire to say, however, and I am sure of speaking for the Dairy Show also, that we appreciate very much the spirit on the part of the colleges who got teams ready for this contest.

# STUDENTS' DAIRY PRODUCTS JUDGING CONTEST

W. P. B. LOCKWOOD[1]

*Amherst, Massachusetts*

The students' judging contest for dairy products was carried on under adverse conditions this year. As a matter of fact the committee did not think they were going to have a contest until along about the middle of August. Last year, if you remember, we had $500 to offer as cash prizes, this was given to us by the Massachusetts Society for the Promotion of Agriculture, but they would not give us money for a contest held outside of Massachusetts, and the time was so short that we could not secure money from other sources. Therefore we were unable to offer money prizes this year.

There were three cups offered this year: The J. B. Ford Company offered a cup for the team scoring highest in judging market milk. This was won by the team from the South Dakota State College. The J. G. Cherry Company offered a cup for the team scoring highest in judging butter. This was won by the team from the South Dakota State College. The Hoard's Dairyman offered a cup for the team scoring highest in judging cheese, and this was won by the team from the University of Nebraska.

I wrote to members of the committee relative to changing the methods, etc., for conducting the contest, but received few answers.

Last year we put the work on the total scores of each sample. This year we graded every item and deducted differences from Judges score on the item, totalling the results for the sample, and the totals for all samples determined the placing.

Three teams were in the contest: South Dakota State College, the University of Nebraska and University of Ohio. I am sorry

[1] Superintendent of contest.

that we did not have more teams as I think Mr. Skinner feels we ought to have at least half as many as the stock judging contest. I want to say this, that it cost more money to run our contest than to run the cattle judging contest for what we apparently get out of it.

It would seem that the judging of dairy products deserves pretty nearly as good a place as the judging of cattle, and we can get it; but the attitude is not towards it, and we will have to create this attitude. The question came up whether or not we should spend enough money to conduct the contest as originally planned and pay for the judges. The cattle men have men to act as judges at their contests who do not cause extra expense. If we were to bring judges for the judging of dairy products it would mean one for each product, or three judges in all which means expenses for three men. Although the work warrants this, it does not make the appearance that is made when judging cattle.

If we had had time to build up incentives enough to get teams to come to the contest we would have had a larger number of teams and possibly the present objection to expense would not have been so strong. Judging was the real object of this contest. After all judging was done the judges met the instructors and contestants and went over all samples that had been previously judged. The placing of the samples of each product was examined by the instructors, students, and judges, then the judges criticized them telling why they were placed as they were. The sample that scored highest of each product, was discussed thoroughly in order that both instructors and contestants might carry away the judges' ideas of best quality products. This was very educational as each man gathered information which he took back with him to his work.

It seems to me that this is the thing which must be individually followed by each teacher, in getting these ideas fixed in our commercial courses, and when we find a high grade of butter score it, discuss it, and carry back to our institutions the ideas and standards that we will have to meet in our production.

Next year I hope we will have more cups for prizes, a first,

second, and third cup for teams. I believe manufacturers will put up a manufacturers' scholarship. Possibly a group of manufacturers, or interested men, may be persuaded to contribute a small amount each for its support. I have talked with one or two men regarding this and they felt this might be feasible and that it would be a start forward for us. I thank you.

# ADDRESS[1]

B. H. RAWL[2]

*Washington, D. C.*

If I mistake not this organization was created about ten or twelve years ago. I think it was at the home of Professor Decker that the suggestion of this organization was made—at one of the sessions of the graduate school of agriculture in 1906. I was not present at that time, but I was present a little later, at a little impromptu meeting. After talking a little while we began to take stock; then this organization was started. It was characterized then by the kind of men that we have here tonight and it has grown greatly in eleven years.

And that reminds me of what seems to me an essential consideration, that the organization has not grown just because it was easier for it to grow than to stand still. The members, then as now, were the educational leaders of the industry, and by the way, at that time a great many of the dairy departments of our agricultural colleges consisted of but one man. Today some of these institutions have a large number of men representing the dairy department. The separation of dairying into its various distinct branches has taken place so that this growth represents in a measure the importance and substantialness of the industry that we are engaged in furthering. Perhaps it is not amiss, therefore, at the present time, to look back over the progress along this line.

We are now passing through a most remarkable period. Our commercial system and our educational system, and in fact our whole lives, are surrounded by circumstances that none of us could have imagined a short time ago.

[1] Address delivered at the evening session of the American Dairy Science Association, Columbus, Ohio, October 22, 1917.

[2] Chief of United States Dairy Division.

Some of us have come to look upon the dairy industry as a fixed and fundamental part of the agriculture of the future of this Nation. As the agriculture is developed, as the national demands for intensive agriculture increase, we feel that dairying is going to be made an increasingly important factor. By helping that industry to meet the demands that are to be placed upon it, this organization and other organizations of leaders, teachers, and investigators of the world can render a great se v-ice to mankind. I believe that in the next ten years we shall see a growth of the dairy industry far greater than we have had in the past ten and we must all do our share to help in the development.

New problems of dairying confront us now. Almost daily the food administration tells of the importance of maintaining the best agricultural situation in order to insure the food supply. We are informed that the food of the world and particularly the food supply of this Nation, will be an enormous, if not deciding factor, in this great world war. If that is true it is the duty of every American to do his share. I suppose that you have to face a situation similar to that with which we are confronted, in which the demands come from every source for something to be done along this line, that or the other; but frequently the demands are not associated with or accompanied with workable suggestions.

It seems that one of the first essentials, one of the steps of greatest importance, is that we should undertake to make the most complete utilization possible of the supplies which the dairy industry now affords. Is it not possible for you as representatives from most of the States to obtain a more complete utilization of dairy products and by-products? About 50 per cent of the milk of the nation is used for making butter. From this branch of the industry there are left enormous quantities of by-products, such as skim milk and buttermilk. While these are usually not wasted, they are not being used to the best advantage for human food. The Dairy Division did some work this summer in helping creameries, milk plants, and farmers to make better use of the dairy by-products. I wish to express

here our great appreciation of the coöperation of the various institutions throughout the country in assisting us along some of these lines. In the work to utilize fully the by-products by creameries and milk plants, I had a statement a short time ago regarding the results.

In all, during the summer, 10 men were employed on the work in New York, Michigan, Vermont, Wisconsin, Minnesota, Ohio, Maryland, West Virginia, Iowa and Pennsylvania. Seven hundred and twenty-six creameries and milk plants were visited, 58 of which were interested in making cottage cheese, 7 in condensing skim milk, and 2 in utilizing whey for human food. During the summer as a result of this work, 2,015,100 pounds of cottage cheese were made; 7,360,100 pounds of skim milk was condensed, and 560,000 pounds of whey made into primost and albumin cheese. Figuring on the food value of the various products, it has been estimated that for each dollar spent $35 worth of food was saved. This does not account for the production after the summer period or next season and so on. Besides this work a publicity campaign was carried on to show consumers the value of and ways to use dairy products, and to help the producer by pointing out more economical practices. In all about 4,500,000 sheets of publicity material were distributed to consumers, manufacturers and producers.

It is very necessary that the skimmed milk be used for human food and therefore, it must be made up in some practical manner so that it can be used. The food administration urges us again and again to use exclusively perishable products so that the staples may be distributed and shipped to other countries after our own country is supplied. Every time we use cottage cheese (every pound is equal approximately to one pound of meat,) one pound of meat can be released for shipment abroad.

I do not know how you feel about this work, but I believe that the dairy interests should and can do a great deal through their various channels to stimulate the use of the dairy by-products, as well as working to increase production. That is a part of their work to increase the available food supply.

Now it is a comparatively easy matter to increase the produc-

tion of wheat if the price is sufficiently attractive, because wheat can be sown in the fall or in the spring, and it does not affect materially the organization of the farm whether a few acres more wheat is sown or not. Such is not the case with dairies. It takes two years to raise cattle to the producing age. Ever since the declaration of war there has been a great deal of nervousness about the sale of cattle, and in some communities it has been justified. In some sections considerable numbers of dairy cattle have been sold for one reason or another, possibly in some cases because of the high prices received for them, and in others the difficulty in obtaining labor. A gentleman told me today that manufacturing plants in his vicinity had taken all his men at prices he could not meet. Some feel that the draft is affecting the farm seriously. On the other hand, the draft has affected all the other industries, and it is vital to our national policy. As to how that draft can be changed to improve conditions I am not able to express an opinion.

The question of properly maintaining the industry seems to me, is very important and should have the full consideration of every dairy organization. I think the nervousness about the dairyman being forced out of business has been too great. Some farmers have been, perhaps, a little too quick to become uneasy. It is well to fully realize before abandoning an enterprise the time it takes to organize a farm for successful dairying. It is not the part of wisdom to tear that organization to pieces in a month, when it is realized that the time required to bring it back to the same point, and the importance of the industry in the years to come, is very great.

Can we not appeal to the small farmers who are doing their own work to carry dairy cattle to the extent of the labor and roughage that is available? Can we not encourage the saving of good dairy cattle? Certainly there never was such a good opportunity for the culling out of inferior and diseased animals.

In addition to the utilization and saving of good cattle we have the question of saving the heifers that will shortly reach the producing age. I know that you are thinking about these things and handling them the best you can, but I want to say

that there is no time, that there has been no time in the memory of any here assembled, in which it was more vital for us to harmonize our efforts and our work,—to work together, than now.

We of the Department of Agriculture seek an opportunity to coöperate with you in dealing with these questions, in lending our help to yours in dealing with the problems in the various regions in such way as will help to maintain the industry, and make it bring the greatest good to the country at this, perhaps the most important time in the whole history of the nation.

Let us know how we can help you, and we shall ask the privilege of calling on you, as we have done in the past, to take up these questions and maintain the industry and to increase production in every way possible.

Courses along the lines of the utilization of dairy by-products should be established as a part of the winter short course. In that way we can impress upon the short course as well as the long course students the necessity of utilizing these by-products on the farm as well as in the factory, in the most economical way. A great deal of good can be accomplished if we will give the time and effort.

I wish I had something to suggest that would offer a quick and ready solution of our present problem. This is a period which demands the most thorough system of agriculture that this nation has ever used. It is not the time for launching into uncertainties, but it is a time for the most careful, the most thorough, definite, solid and substantial agriculture that we have ever had; and I believe the present conditions will bring about a better dairy industry. I have given you a glimpse of our plans and aims and what we have already done in the short time elapsed. At this time we must all stand together to render all possible service to the industry and through that, to the nation.

# ADDRESS

H. E. VAN NORMAN[1]

*Davis, California*

I do not wish to prolong this meeting, but it so happened that my office is so far away from the Secretary's office—and I missed my program—that I made another engagement for this evening, in the multiplicity of activities that are now going on.

I am glad that I have been able to be in for this afternoon. I have heard more discussion than ever before it seems to me.

There are some thoughts that I would like to leave with the Association members. We have a pretty live bunch of young men here engaged in the dairy divisions of our institutions of the United States today, and they are concerned and confronted with some gigantic problems in the reorganization of society that is in progress today, and I want to urge each one of our dairy instructors to look about him and be sure that he is doing to the limit of his measure of ability his part in that great big indefinite, indefinable problem which is before all of us. How are we going to solve this great problem that we have before us—this shocking thing that is dealing destruction in all parts of the world.

Wherever I have been since I came to Columbus where two or three people are gathered together, there somebody is talking over the problem of the price of milk. What is the province of the Dairy Instructors in helping to solve that problem.

As near as I can size it up the government understands that we are all working to fix a fair price for milk. Can we do it? Are you willing to be one of a committee of five to say to the American people what is a fair price for the farmer to receive for milk throughout the United States? I am not.

This problem of a price to the producers must be worked out

[1] President of the National Dairy Show.

locally. There are too many variable factors to permit of a national solution. Has your dairy division in your college got the man in it whose experience and judgment make him the most helpful agency in your state for solving that vexing problem?

It seems to me that our college departments ought to be in that position—that they are the most useful agencies available to solve such problems. But I sometimes wonder if they do not get so busy with extension and educational work that they cannot do this kind of work which qualifies them to render that assistance and that service in the marketing of our dairy products, and other agricultural products the immensity of the problems now confronting us demand. Someone has said that our city thinkers must take a larger interest in solving the problems of the relations of rural and city life than they have been doing in the past. It is interesting to note that the war has brought to the considerations of these problems, many people not heretofore concerned with rural problems. Through the State Council of Defense of Massachusetts it devolved upon a leather man to settle the milk problem in that State. In Washington the general manager of the California Citrus Exchange as a member of Hoover's staff is called upon to take an active interest in the milk problem that now confronts so many sections of the nation. The recent commission to propose a plan for studying and settling the price of milk did not include one head of a dairy department of an agricultural college, but did include a professor of farm management, from an agricultural college. I do not question the ability of any of these men for the position to which they are selected, but I find myself wondering why none of our dairy departments seem to have the men who are wanted to help solve these problems. I believe that those of us charged with the responsibility for selecting the men to conduct the work of our dairy departments and to teach our dairy students should give some thought to the conditions I have just referred to. If we are not attracting to the work of our dairy departments the right type of men or if we are not holding them in our dairy departments after we get them there, should we not make

some changes in our college policies. I have been impressed with the thought that many of our big commercial concerns are employing more highly trained men and spending more money in the study and research along dairy lines than many of our State institutions are doing. I believe it behooves us to think carefully of these things.

Again I am aware of the financial limitations under which many of our departments work, but I believe we should give more thought and effort to bringing into the lime light the good work that has been and is being done. Professor Erf as the representative of The National Dairy Show has secured from our college dairy departments the best exhibit we have had at any Dairy Show. I wonder if we are giving too much attention to extension and teaching work and too little to dairy investigation. Look over the exhibits of Pennsylvania, Iowa, Illinois, Ohio State University and Ohio Experiment Station and see what they are presenting.

As a spectacle this year's Dairy Show exceeds anything we have had before, yet, we have not touched the more fundamental educational aspects of the industry. Our colleges have had but a small part in this great show. I covet for the dairy departments of our colleges a more prominent and influential position, not only in the work of the National Dairy Show, but in the eyes of the great commercial industry which we serve. I very much appreciate this opportunity, Mr. President, to say a word to this Association of which I am not only a charter member, but I think a pre-charter member. At the first graduate school of Agriculture at the Ohio State University upon the invitation of Prof. J. J. Decker, there gathered in his home some ten or fifteen men who were teaching dairying in their respective institutions. It was the memory of these successful gatherings that prompted the organization of the Official Dairy Instructors' Association, now the American Dairy Science Association. It did not run itself. Its members have made it.

May I also express my appreciation of the splendid work that Professor Frandsen is doing, in giving us an official publication. He has intimated that he is short of suitable material

for publication. It is up to us who are here to furnish him this material and keep up the high standard he has set in the initial numbers of the Dairy Science Journal.

Some college men dislike notoriety, but still there is such a thing as undue modesty. We should write of the things we think and let the editor decide whether they will help our profession if published. Let us do everything we can to second his efforts.

## RESOLUTIONS

**The following resolutions were presented and adopted:**

*Whereas*, the dairy products of this country represent approximately 18 per cent of the total food supply of the nation:

BE IT RESOLVED, that the members of the American Dairy Science Association assembled at its twelfth annual meeting, individually and collectively pledge to the National Food Administration their support and constant efforts to increase and conserve the dairy products of the country.

BE IT FURTHER RESOLVED, that the directory of this Association be instructed to send a copy of this resolution to Herbert Hoover, National Food Administrator.

*Whereas*, the success of the dairy cattle and dairy products student judging contest has been made possible by the coöperation of the Dairy Division of the United States Department of Agriculture:

BE IT RESOLVED, that the American Dairy Science Association extend its appreciation and thanks to Chief B. H. Rawl and all who have assisted in the work, especially to Helmer Rabild, S. C. Thompson and J. A. Gamble.

*Whereas*, the scholarships and silver cups offered in the students' judging contest add materially to the interest of these contests; and,

*Whereas*, these scholarships are making possible the training of men in dairy science,

BE IT RESOLVED, that the American Dairy Science Association extend to all donors of scholarships and silver cups its appreciation and thanks;

BE IT FURTHER RESOLVED, that a copy of this resolution be sent to each of the donors.

*Whereas*, the Journal of Dairy Science has been published, and the first issues distributed;

*Whereas*, this association is greatly benefitted by the publishing of the Journal, and

*Whereas*, the editor has labored untiringly in the inception and publishing of a creditable Journal,

BE IT RESOLVED, that a vote of thanks of the Association be here with expressed to the Editor-in-Chief, Professor J. H. Frandsen.

FRED RASMUSSEN, *Chairman*,
ERNEST KELLY,
B. H. THOMPSON,
C. C. HAYDEN,
Committee.

## ELECTION OF OFFICERS

The following officers were re-elected for the ensuing year:
*President:* Prof. W. A. Stocking, Ithaca, New York.
*Vice-President:* Prof. A. C. Anderson, East Lansing, Michigan.
*Secretary-Treasurer:* Prof. M. Mortensen, Ames, Iowa.
The officers constitute the Executive Committee of the Association.

## COMMITTEES APPOINTED BY AMERICAN DAIRY SCIENCE ASSOCIATION, 1917

*Dairy Farm Score Card:* Ernest Kelly, *Chairman*; C. B. Lane, W. A. Stocking, I. C. Weld, H. A. Harding.

*Milk Quality:* H. A. Harding, *Chairman*; W. A. Stocking, R. S. Breed, E. G. Hastings.

*Bacteriological Methods for Market Milk Analysis:* R. S. Breed, *Chairman*; L. A. Rogers, E. G. Hastings, G. C. Supplee, B. W. Hammer.

*State and National Brands for Butter and Cheese:* M. Mortensen, *Chairman*; C. E. Lee, C. Larsen, N. W. Hepburn, F. W. Fisk.

*Cream Grading:* J. H. Frandsen, *Chairman*; F. W. Bouska, G. S. Hine, C. W. Larsen.

*Legal Limits for Ice Cream:* R. M. Washburn, *Chairman*; O. F. Hunziker, M. Mortensen, W. W. Fisk.

*Official Methods for Testing Butter for Butter Fat:* H. C. Troy, *Chairman*; E. C. Gray, J. M. Barnhardt.

*Official Methods for Testing Milk and Cream for Butter Fat:*

O. F. Hunziker, *Chairman*; F. W. Bouska, Fred Rasmussen, H. C. Troy, L. A. Rogers.

*Methods of Conducting Students Dairy Products Judging Contest:* W. P. B. Lockwood, *Chairman*; M. Mortensen, C. E. Lee, E. S. Guthrie, H. C. Mills, R. L. Lang.

*Methods of Conducting Students Dairy Cattle Judging Contests:* Helmer Rabild, *Chairman*; H. H. Wing, H. H. Kildee, E. G. Woodward, William Regan, E. L. Anthony.

*Relation to Breed Associations:* C. H. Eckles, *Chairman*; H. E. Van Norman, H H. Wing, E. G. Woodward, Roy T. Harris, G. C. Buckley.

*Statistics of Milk and Cream Regulations:* I. C. Weld, *Chairman*; E. H. Farrington, G. A. Gamble, H. E. Ross, Roy C. Potts.

*Courses of Instruction for Dairy Inspectors:* Oscar Erf, *Chairman*; H. E. Van Norman, A. C. Anderson, I. C. Weld, Ernest Kelly.

*Feeding Standards for Milk Production:* C. Larsen, *Chairman*; C. H. Eckles, F. S. Putney, Helmer Rabild, A. A. Borland, E. S. Savage.

*Legal Limits for Butter:* B. D. White, *Chairman*; J. G. Winkjer, G. H. Benkendorf, C. C. Cunningham,

*Graduate Instruction in Dairying:* R. A. Pearson, *Chairman*; C. E. Marshall, C. W. Larsen.

*International Dairy Congress:* Fred Rasmussen, *Chairman*; B. H. Rawl, R. S. Breed, O. F. Hunziker, M. Mortensen.

*Revision of Constitution and By-Laws:* C. H. Eckles, *Chairman;* Fred Rasmussen, O. F. Hunziker, M. Mortensn, W. J. Fraser, R. A. Pearson, J. H. Frandsen.

*Statistics on Marketing of Dairy Products:* Roy C. Potts, *Chairman;* O. F. Hunziker, S. C. Thompson, C. E. Lee, L. M. Davis.

## NAMES AND ADDRESSES OF MEMBERS IN ATTENDANCE

M. Mortensen.....Iowa State College, Ames, Iowa
A. J. Glover.....Fort Atkinson, Wis.
R. B. Stoltz.....Ohio State College, Columbus, Ohio
W. W. Yapp.....College of Agriculture, Urbana, Ill.
N. W. Hepburn.....College of Agriculture, Urbana, Ill.
Ernest Kelly.....Washington, D. C.
W. A. Stocking.....Ithaca, N. Y.
H. E. Droracheke.....Fayetteville, Ark.
E. M. Clark.....Urbana, Ill.
R. I. Grady.....Ohio Agriculture Experiment Station, Wooster, Ohio
P. H. Crane.....Lebanon, Ind.
S. I. Bechdel.....State College, Pa.
H. C. Yerger, Jr.....Pennsylvania State College, State College, Pa.
Fred Rasmussen.....Pennsylvania State College, State College, Pa.
R. R. Latz.....Pennsylvania State College, State College, Pa.
H. A. Torry.....Pennsylvania State College, State College, Pa.
R. S. Clark.....Pennsylvania State College, State College, Pa.
David Breman.....Pennsylvania State College, State College, Pa.
Karl B. Musser.....Connecticut Agriculture College, Storrs, Conn.
R. S. Hulce.....Rock River Farms, Byron, Ill.
Wm. Regan.....New Jersey Experiment Station, New Brunswick, N. J.
L. S. Riford.....Plainsboro, N. J.
J. B. Fitch.....Manhattan, Kans.
J. A. Clutter.....Clemson College
E. V. Ellington,.....U. S. Dairy Division, Washington, D. C.
R. R. Graves.....U. S. Dairy Division, Washington, D. C.
A. C. Ragsdale.....University of Missouri, Columbia, Mo.
W. J. Fraser.....University of Illinois, Champaign, Ill.
Roy C. Potts.....Bureau of Markets, Washington, D. C.
Ivan C. Weld.....Chestnut Farms Dairy, Washington, D. C.
C. B. Lane.....Supplee Milk Company, Philadelphia, Pa.
J. A. Gamble.....Dairy Division, Washington, D. C.
J. H. Frandsen.....University of Nebraska, Lincoln, Nebr.
B. H. Thompson.....University of Nebraska, Lincoln, Nebr.
F. H. Hoxer.....University of Arkansas, Fayetteville, Ark.
A. L. Beam.....Penn State College, State College, Pa.
E. L. Anthony.....Penn State College, State College, Pa.
Geo. S. Bulkley.....Penn State College, State College, Pa.
L. C. Tomkins.....Penn State College, State College, Pa.
C. W. Larson.....Dairy Division, Washington, D. C.

G. L. Martin.....Bozeman, Mont.
J. M. Cadwallader.....Baton Rouge, La.
C. Larsen.....State College, Brookings, S D.
J. W. Ridgway
Texas Agriculture and Mechanical College, College Station, Texas
W. D. Nicholls.....Kentucky State University, Lexington, Ky.
C. C. Cunningham.....Ohio State University, Columbus, Ohio.
C. W. Holdaway.....Virginia Polytechnic Institute, Blacksburg, Va.
C. L. Roadhouse.....University Farm, Davis, Calif.
Leon M. Davis.....Washington, D. C.
A. E. Perkins.....Ohio Agriculture Experiment Station, Wooster, Ohio
S. M. Salisbury.....Ohio State University
J. C. McNutt.....Amherst, Mass.
R. S. Pau.....College Station, Texas
J. C. Patterson.....Texas Department Agriculture, Austin, Texas
W. P. B. Lockwood.....Massachusetts College, Amherst, Mass.
H. C. Harding.....College of Agriculture, Urbana, Ill.
W. W. Swett.....University of Missouri, Columbia, Mo.
W. B. Combs.....New Jersey Experiment Station
R. H. Ruffner.....Maryland State College, College Park, Md.
C. C. Hayden.....Ohio Agriculture Experiment Station, Wooster, Ohio
A. C. Anderson.....Michigan Agriculture College, East Lansing, Mich.
William White.....Dairy Division, Department of Agriculture
Roy T. Harris.....Wisconsin Agriculture College, Madison, Wis.
C. L. Willoughby.....University of Florida, Gainesville
J. D. Jarvis.....West Lafayette, Ind.
W. L. Clevenger.....Dairy Division, Knoxville, Tenn.
C. H. Eckles.....University of Missouri, Columbia, Mo.
H. P. Davis.....Dairy Division Department of Agriculture, Washington, D. C.
M. J. Prucha.....University of Illinois, Urbana, Ill.
R. S. Breed.....Geneva, N. Y.

## LIST OF MEMBERS

The following is a complete list of the active members of the American Dairy Science Association whose dues have been paid to date. In some cases it has been difficult to get correct addresses and members will confer a great favor if they will send any necessary corrections to Secretary Mortensen, Ames, Iowa.

At the last annual meeting of the Association the following action was taken:

Moved: that any member whose dues were two years in arrears and who does not pay his dues within thirty days, will be notified that his name is automatically dropped as a member of this Association.

Your officers desire to give delinquent members every opportunity to continue their membership. They may still do so by sending their back dues to Secretary Mortensen, but if this is not done soon it will be necessary to follow the instructions of the Association and drop their names from the list. We hope all former members will consider membership in the Association of sufficient value so that they will want to continue in active relations with it.

Respectfully submitted,

W. A. STOCKING,
*President.*

*Paid-up Members American Dairy Science Association, March 21, 1918*

ANDERSON, A. C., Agriculture College, East Lansing, Mich.
ANTHONY, E. L., State College, Pa.

BARNES, S. E., DeLaval Separator Company, New York, N. Y.
BEAM, A. LELAND, Pennsylvania State College, State College, Pa.
BECHDEL, S. I., Pennsylvania State College, State College, Pa.
BENKENDORF, G. H., University of Wisconsin, Madison, Wis.
BILLINGS, G. A., Department Farm Management, Washington, D. C.
BORLAND, ANDREW A., Pennsylvania State College, State College, Pa.
BOUSKA, F. W., 2037 Continental and Commercial Bank Building, Chicago, Ill.
BRANDT, P. M., Oregon Agriculture College, Corvallis, Ore.
BREED, R. S., Geneva, N. Y.
BROWN, R. W., Manitoba Agriculture College, Winnipeg, Canada.
BUCKLEY, G. S., Pennsylvania State College, State College, Pa.
BURLINGHAM, C. L., Care of *Hoard's Dairyman*, Ft. Atkinson, Wisc.
BURNETT, J. E., East Lansing, Mich.
BROWNELL, S. J., Department Dairy Husbandry, East Lansing, Mich.
BAILEY, D. E., Iowa State College, Ames, Iowa.

CAINE, GEO. B., Logan, Utah.
CALLDWALLADER, J. M., Baton Rouge, La.
CALDWELL, R. E., Lafayette, Ind.
CAMPBELL, GLENN H., Storrs, Conn.
CLEVENGER, W. L., Extension Division, Knoxville, Tenn.
CLUTTER, J. A., Clemson College, S. C.
CORBETT, L. S., Orono, Me.
CUNNINGHAM, O. C., Ohio State University, Columbus, Ohio.
COMBS, W. B., New Jersey Agriculture Extension, New Brunswick, N. J.
CORNELIUSSEN, THOS., Dairy Division, Washington, D. C.

DAHLBERG, A. O., Dairy Division, Grove City, Pa.
DAVIS, H. P., Dairy Division, Washington, D. C.
DAVIS, LEON M., United States Bureau of Markets, Washington, D. C.
DICE, J. R., Morrisville, N. Y.
DRAIN, HARRY D., Amherst, Mass.

ECKLES, C. H., Columbia, Mo.
ELLENBERGER, H. B., Berwick Hotel, Rutland, Vt.
ERF, OSCAR, Columbus, Ohio.

FISK, W. W., Ithaca, N. Y.
FITCH, J. B., Department Dairy Husbandry, Manhattan, Kans.
FITTS, E. B., Oregon Agriculture College, Corvallis, Ore.
FORBES, WILL, Associate Manufacturing Company, Waterloo, Iowa.
FRANDSEN, J. H., College of Agriculture, Lincoln, Nebr.
FRASER, W. J., Champaign, Ill.
FRYHOFER, C. W., R. F. D. 3, Plainfield, N. J.
FULLER, J. M., New Hampshire Agriculture College, Durham, N. H.
FINKELSTEIN, R., Department of Bacteriology, Agriculture College, Guelph, Canada.

GAMBLE, J. A., Bureau Animal Industry, Washington, D. C.
GLOVER, A. J., *Hoard's Dairyman*, Ft. Atkinson, Wisc.
GRAVES, R. R., Oregon Agricultural College, Corvallis, Ore.
GRAY, C. E., 425 Battery Street, San Francisco, Calif.
GUTHRIE, E. S., Cornell University, Ithaca, N. Y.
GRADY, ROY, Ohio Experiment Station, Wooster, Ohio.
GOSS, E. F., University of Idaho, Moscow, Idaho

HAECKER, A. L., care of Woods Bros. Silo Company, Lincoln, Nebr.
HAECKER, T. L., St. Anthony Park, Minn.
HARDING, H. A., University of Illinois, Urbana, Ill.
HARRIS, R. T., Animal Husbandry Department, Madison, Wis.
HAUSER, A. J., Dairy Department, Ames, Iowa
HAYDEN, C. C., Experiment Station, Wooster, Ohio
HEPBURN, N. W., Urbana, Ill.
HOLDAWAY, C. W., Blacksburg, Va.
HOPPER, H. A., Cornell University, Ithaca, N. Y.
HUNZIKER, O. F., Care of Blue Valley Creamery Company, Chicago, Ill.
HAMMER, B. W., Iowa State College, Ames, Iowa.
HASTINGS, E. G., University of Wisconsin, Madison, Wisc.
HOOPER, J. J., Kentucky Agricultural College, Lexington, Ky.

JORGENSON, F. A., Twin City Creamery, Champaign, Ill.
JAMISON, O. A. Amherst, Mass.
JARVIS, J. D., DeLaval Separator Company, Chicago, Ill.
JONES, V. R., Brookings, S. D.
JUDKINS, H. F., Storrs, Conn.

KELLEY, ERNEST, United States Department Agriculture, Washington, D. C.
KENDALL, J. C., Durham, N. H.
KILDEE, H. H., University of Minnesota, St. Paul, Minn.
KNOLL, F. P., Pennsylvania State College, State College, Pa.

LANE, C. B., Supplee Alderney Dairy Company, Philadelphia, Pa.
LARSEN, C., South Dakota State College, Brookings, S. D.
LARSON, C. W., Columbia University, New York, N. Y.
LECLERC, J. D., St. Hyacinthe, Quebec
LEE, C. E., University of Wisconsin, Madison, Wisc.
LOCKWOOD, W. P. B., Amherst, Mass.
LUCAS, PAUL S., Oregon Agriculture College, Corvallis, Ore.

MARTIN, G. L., Bozeman, Mont.
MAYNARD, L. H. P., 1937 Market Street, Philadelphia, Pa.
MCINERNEY, T. J., Ithaca, N. Y.
MILLS, H. C., Lafayette, Ind.
MORTENSEN, M., Iowa State College, Ames, Iowa
MUSSER, Karl B., Storrs, Conn.

NEWLANDER, C. E., Department Dairy Husbandry, East Lansing, Mich.
NYSTROM, A. B., Washington Agriculture College, Pullman, Wash.
NEWHALL, H. W., Michigan Agriculture College, East Lansing, Mich.
NICHOLLS, W. D., Kentucky College of Agriculture, Lexington, Ky.
NEVENS, W. B., University of Nebraska, Lincoln, Nebr.

OGLE, G. L., Evansville Pure Milk Company, Evansville, Ind.
OLIVER, G. L., Dairy Division, Washington, D. C.
OLSON, N. E., Citronelle, Ala.

PARKER, HORATIO N., *The Delineator*, Butterick Building, New York, N. Y.
PEARSON, FRANK A., Department Dairy Husbandry, Urbana, Ill.
PEARSON, R. A., Iowa State College, Ames, Iowa.
POTTS, R. C., Office of Markets, Washington, D. C.
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